

Railway Age

Vol. 83

August 20, 1927

No. 8



A Jersey Central Suburban Train at Roselle, N. J.

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Published every Saturday by the

Simmons-Boardman Publishing Company, 30 Church Street, New York

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NEW ORLEANS, MANDEVILLE, LA.

LONDON, England: 84 Victoria St., Westminster, S. W. 1.

Cable Address: Urasigmeo, London

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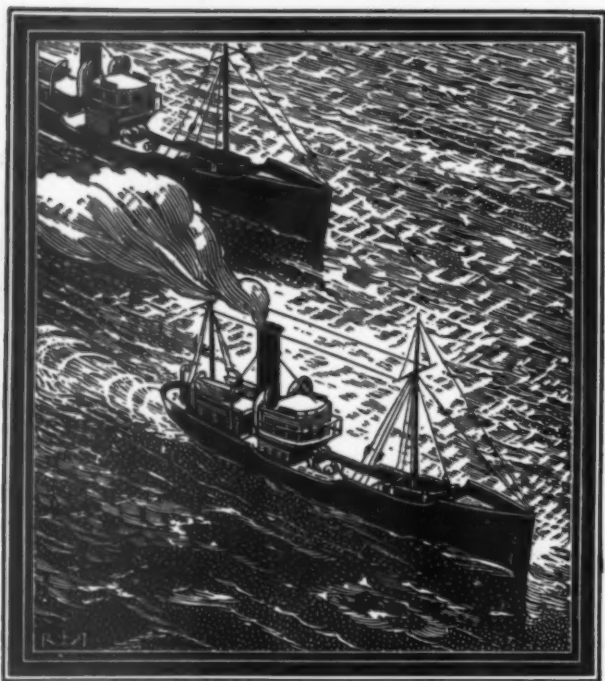
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The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.). Entered at the Post Office at New York, N. Y., as mail matter of the second class.

Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free; United States, Mexico and Canada, \$6.00. Foreign countries, not including daily editions, \$8.00. When paid through the London office, £1.15.0.

Subscriptions for the fourth issue each month only (published in two sections, the second of which is the Motor Transport Section) payable in advance and postage free: United States, Mexico and Canada, \$1.00; foreign countries, \$2.00; or, 10s. Single copies, 25 cents each, or 1s.

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Railway Age

Vol. 83, No. 8

August 20, 1927

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Page 5 of Advertising Section

Innovations in Parlor Car Service

THE possibilities of adapting the modern passenger car to afford a maximum of comfort and convenience for the railroad traveler is well illustrated in the interior arrangement of the parlor-cafe car which was recently placed in service by the Delaware & Hudson. This car, a description of which is published elsewhere in this issue, is equipped with a kitchen and pantry of sufficient capacity to provide meals for coach passengers as well as to the parlor car patrons. It is divided into three compartments, a dining room, a non-smoking and a smoking compartment. The latter compartment is considerably larger than either of the other two. The dining room is used for serving meals to coach passengers. The two parlor compartments are furnished with movable chairs, and tables are provided for meal service. This arrangement whereby meals can be served in the smoking compartment is unique, and should make a special appeal to travelers who enjoy smoking between courses and after their meals. The interior arrangement of this car is the result of a number of well-thought-out ideas designed to add to the comfort and pleasure of passengers on the Delaware & Hudson, and is an excellent example of what can be done in the way of providing refinements where traffic does not demand extensive Pullman accommodations.

Why Keep it a Secret?

WITH the general trend toward the progressive merchandising of railway transportation, many roads are now spending large sums annually for advertising but thus far they seem to have confined their appropriations almost entirely to printed matter to the entire exclusion of any effort to capitalize directly on the publicity value of their vast holdings of physical properties throughout the length and breadth of the country. Railroad geography is not taught in American schools. It must be learned by a study of timetables or from travel on passenger trains, and with the increased use of the private automobile or the motor bus, there are many persons who have contact with the railroads only at grade or separated crossings of highways and railroads. Yet in spite of the number of crossings encountered in a day's ride on the highway, the traveler may never see any sign or name plate which will enlighten him as to the ownership of the tracks he crosses. The identification of two lines of rusty rails in a weed-covered right-of-way is obviously of no advantage to the owners. But surely a line of two, three or four well-maintained tracks with neat ballast lines and a spick and span right of way will make a favorable impression on the highway traveler which would redound to the benefit of the railroad, if the traveler had some way of finding out what road it is. A grade separation bridge of substantial and well-proportioned construction would create an even more

favorable impression because of the obvious fact that it had been necessary for the railroad to spend a considerable sum of money for the separation of the grades. However, the presence of the name of the railroad on the fascia or parapet of such structures is observed so rarely as to indicate definitely that very few roads have given any thought to the advertising value of their tracks, bridges and other physical properties.

Successful Leadership

A RAILROAD mechanic, who has given an excellent account of himself as the shop crafts' leader on his system, and is respected both by his fellow workers and the management, says that his big job is to exercise proper control over himself. Questioned further, he indicated that he had to be alert and on guard at all times to prevent being prejudiced almost unconsciously by relatively unimportant incidents, or by the apparent attitudes of the people with whom he was conferring. He found that he could always represent his fellows better, and more fully protect their interests, if he could keep his mind open and unbiased. Admittedly this is no easy task. He told of occasions upon which it was necessary to get off by himself and literally "lay down the law to himself in no uncertain terms." Is this not an attitude of mind that supervisors and executives, as well as labor leaders, should strive to cultivate? Is it not true that the most successful leaders in the industrial field are men who are distinguished by their broadminded, tolerant attitude in dealing with their fellows, and particularly with their subordinates?

Boston & Maine Studying Its Freight Service

THE Boston & Maine has announced that it has appointed a committee of its officers to undertake a system-wide survey of its freight service. The survey, it is expected, will require several months and will result in materially expediting the service, since special attention will be paid to developing a more efficient relationship between local freight movements, industrial switching and through freight runs. The study will also endeavor to find additional use for the motor truck in improving the speed and economy of the service. The Boston & Maine, while not unique in its position, is rather peculiarly situated with reference to its serving of a rather compact territory intensively. Its many branches and junction points make operating problems severe, when compared with those of railroads which enjoy a long haul without much switching for most of their traffic. A year or so ago the road by an intensive study of its passenger service was able to effect important economies, while at the same time greatly improving the service to patrons. The outcome of the

present study will be watched with a great deal of interest by all roads which have conditions to deal with which are at all similar to those on the Boston & Maine.

Air Transport Recognized by Carriers

THE announcement of the American Railway Express Company that it has contracted with four air transport companies for the movement of express packages by airplane between New York, Boston, Chicago, Dallas, San Francisco and Los Angeles, together with reports of the interest shown by several railways in passenger transportation by air, indicate that the existing transportation companies are not overlooking the possibilities of the airplane as a supplement to their trains. There seems reason to believe that air transport will become an adjunct to rail transportation rather than a competitor of it. The American Railway Express Company, for example, has made an extended investigation into the question of the kinds of freight that air transport may attract and it has concluded that the traffic which may in the future be carried by plane will be new traffic of its own development and that the only effect upon the business now handled by railways will be perhaps to increase it as a result of a stimulus to business given by the speedier form of transportation. The same may well be true of passenger transportation by air. If these conclusions are sound, the railways have everything to gain and nothing to lose by the development of air transportation.

Train Orders Eliminated By Central Control

THE installation of a system of centralized dispatcher control on 40 miles of the Ohio division of the New York Central, described elsewhere in this issue, marks an epoch in the method of dispatching trains. In this installation the dispatcher, by means of a small machine in his office, not only controls the operation of all switches but also directs all train movements by signal indication without written train orders, no operators being required at any station. The idea of dispatching trains by signal indication, without written train orders, has been discussed and studied for years. Many developments and certain installations that have already been made show that, although the new system may seem to be a radical departure from tried practice, it is only the logical outcome of developments that produce a practical means of eliminating undesirable train stops and delays. On various roads, short stretches of single track in the vicinity of bridges or terminals have been operated by signal indication without written train orders for years. The Missouri Pacific has been following such a practice on an entire single track district for over two years, the principal passing track switches being handled by interlocking plants and traffic direction locking being used between towers. The Central of Georgia completed an installation on 25 miles of single track in March of this year, in which two operators control the entire territory. These installations followed more or less recognized interlocking practices. The recent installation on the New York Central, however, not only affords control from one centralized point, but also marks a decided departure in types of control equipment, and in the method of recording the movement of trains. This installation, therefore, is the re-

sult of years of study to produce a system that will eliminate delays for train orders and increase the flexibility of operation by displaying the signal indication to direct train movements at the time and place where action is to be taken by the engineman. It would seem appropriate to place this development in the same category with the introduction of the train order, when, in 1851, a train was first run by telegraph order for 14 miles on the Erie.

Improving Locomotive Quality

HEAVY buying of locomotives has generally been closely associated with periods of increasing traffic volume, and in the years during which traffic volume has been receding, the volume of locomotive orders has generally also shown marked recessions. That the railroads buy their locomotives at times when the need for them is greatest does not set them apart as unique among industries which utilize tools or equipment in the production of their commodities. The effect, however, is not in all respects good.

The limited credit which the railroads have for so many years in the past been forced to take into account in connection with all projects requiring capital expenditure has been one factor accounting for the attempt to secure the largest possible number of locomotives, producing the largest amount of starting tractive force, for a given appropriation. Furthermore, with expanding traffic demanding more motive power, the purchase of the largest number of motive power units producing the largest aggregate tractive force has, under these conditions, seemed to many railroad officers the only justifiable course, because to secure less than this would risk a loss of revenue. The immediate needs of railroads, served in this way, however, have frequently cost them heavily in many years of operation of inefficient power.

Since 1918, however, the proportionate increases of revenue net ton-miles which have been shown by the succession of peak years, have been relatively very much smaller than the proportionate increase shown by each peak year over the preceding peak year during the years prior to 1918. As a result, since the railroads returned from federal control, the design of the new locomotives installed by the railroads has been much less influenced by the insistent demand for additional motive power which formerly prevailed, and there is evident a growing tendency toward the purchase of the most efficient motive power, producing not primarily the greatest starting tractive force per unit but the highest possible horsepower for a given weight on drivers. The same appreciation of true motive power quality is also evidenced by another fact. The number of locomotives retired annually during three of the last four years has been much greater than the largest number retired during any preceding year for which the figures are available, while the retirements for the fourth year were only slightly less than the largest preceding year. The locomotives retired during these years have averaged over 30,000 lb. tractive force.

This marked increase in the rate at which obsolete power is being retired is in itself having a wholesome effect on the average condition of the motive power on American railroads, and a continuation of, or even better, an increase in this rate, supplemented by the purchase of new locomotives on an efficiency and a horsepower output basis rather than on a price per pound basis, which the present financial condition of the railroads and the present slow growth in traffic both

make less difficult, will do much to increase net railway operating income by reducing train operating costs. Furthermore, when growth in traffic again assumes a marked upward trend, it will prevent the inefficiencies and accompanying losses which always result from pressing into service obsolete stored power.

Freight Business in the West

FOR the first time in seven years the railways west of the Mississippi river have just reported an increase in freight business relatively larger than the increase on the railways east of the river. In the first six months of 1927 the freight business of the western lines increased 3.9 per cent while that of the eastern lines increased $3\frac{1}{2}$ per cent, and that of the southern lines actually declined almost 1 per cent. Another interesting and perhaps significant fact is that this is the first time that the freight business of the western roads has in the first half of any year exceeded the freight business handled by them in the first half of 1920, the increase over 1920 being, however, only a fraction of 1 per cent.

It is much easier to make improved records of operating efficiency when traffic is growing than when it is standing still or declining. The performance of the western lines in increasing their operating efficiency since 1920, has, therefore, been remarkable. Between the first five months of 1920 and the first five months of 1927 they increased the average distance they moved each freight car daily from 25.4 to 30.7 miles, or 21 per cent. They increased the average number of cars per freight train from $32\frac{1}{2}$ to more than 44, or almost 36 per cent. They increased their average gross tons per freight train 28 per cent and the average speed with which freight trains were moved from 10.9 miles to 12.8 miles, or $17\frac{1}{2}$ per cent. The increase in gross ton-miles per train per hour was from 13,893 to 20,767, or 49 per cent. To handle the business in the first five months of 1920 they moved freight trains 107,721,000 miles, while to handle a slightly larger business in the first five months of 1927 they moved freight trains only 98,353,000 miles. Of course, this reduction in freight train miles was due to the large increase in the average load per train and represented a large economy in operation.

With a heavy decline in passenger business, a large increase in taxes, practically no increase in freight business, and an advance in freight rates since before the war that now averages only about 35 per cent, most of the western roads would have been bankrupted without the great increase in efficiency of operation that has been accomplished.

Pre-Classification

IT is an interesting phenomenon that, as classification yards become more efficient, there is actually a decrease in the percentage of business classified in such yards as it moves through. At first glance, this seems paradoxical, but it is made possible by increased co-operation. Classification yards were regarded, for years, as the only places on the railway where cars could be classified. This erroneous impression had much to do with the yard congestion which formerly prevailed. All traffic of whatever nature, was dumped into the classification yard helter-skelter, and it was up to the yardmaster to get it untangled, if he could. Too frequently, the task was beyond the power of that harassed indi-

vidual, with the more or less meager facilities at his disposal. Modern operating methods, together with a better mutual understanding, have changed this.

The classification yard is still regarded, naturally enough, as the place in which to classify cars, but it is no longer regarded as the sole place where this may be done. In many cases, where it can be done without too much difficulty, a certain percentage of the traffic is being classified before it enters the classification yard. It is not always possible to do this to any great extent, but it is always possible, with study and co-operation, to devise groupings at points of origin, junction points and intermediate terminals, where it can be done with small cost, which will enable such pre-classified cars to move through the yard in groups, rather than as individual cuts. This is being done on some railways with gratifying success. An encouraging tendency is also found in the fact that certain railways are making pre-classifications for other lines. This is usually based on a reciprocal arrangement, whereby each line makes pre-classifications for the other. There is ample opportunity for an extension of this mutual interchange of courtesies, which, incidentally, results in mutual savings.

The classification of cars in a busy yard is a high-speed operation. It is not unusual for one yard to have two, three or even more cars rolling down the hump every minute of the day and night. With such high-speed operation, the slightest hitch is likely to cause serious delay. The avoidance of these hitches is largely a matter of local supervision, but the entire railway, and other railways too for that matter, may aid in eliminating these untoward incidents by judicious pre-classification.

The Commission as a "Special Providence"

THE decision of the Interstate Commerce Commission in the O'Fallon valuation case, and its more recent decisions requiring reductions in rates on coal and California deciduous fruits, illustrate the force of the statement made by Commissioner Eastman in an address seven years ago, that "this is a government of laws and not of men, but the man behind the law is as vital as the man behind the gun."

The constitution is the fundamental law of the United States and the Supreme Court is its interpreter. It prohibits confiscation, and the court has held that confiscation can be avoided only by fixing rates that will yield a fair return upon a valuation in which certain factors are recognized. The commission has deliberately refused thus far in making its valuation of the railroads to recognize some of the most important of these factors. Section 15-A of the Transportation Act provides that rates shall be so adjusted as to enable the railways to earn a fair average annual return and that one-half of the earnings of any railway exceeding six per cent in any year shall be recaptured. The commission has so regulated rates that no large group of roads has throughout the time the act has been in effect earned, on the average, a fair return, but at the same time is diligently seeking to recapture earnings from all railways which in any year have earned more than six per cent.

The Interstate Commerce Act requires all rates to be made just and reasonable, but two years ago Congress passed the Hock-Smith resolution directing the commission in fixing rates to give consideration to the conditions prevailing in the country's various industries, and especially to make upon products of agriculture affected by depression the "lowest possible lawful rates compati-

ble with the maintenance of adequate transportation service." Recent decisions of the commission indicate that other provisions of law have little weight with it when the Hoch-Smith resolution can be used as a pretext for so adjusting rates as actually or ostensibly to help some industry, or even class of persons, that is suffering from adversity.

It cannot be said that there is a depression in the bituminous coal mining industry as a whole. The non-union mines, which even when there is no strike in the union mines, produce about two-thirds of the coal, seem to be prosperous. Nevertheless, on account of alleged "economic conditions" in the coal mining industry the commission has ordered a reduction of 20 cents per ton on coal moving from certain mining districts in Pennsylvania, Ohio and northern West Virginia by rail and lake to the northwest, and admonished the carriers serving mines farther south not to make corresponding reductions—an admonition which has been disregarded. Likewise, the commission has ordered reductions from Illinois and Indiana union mines to the Chicago switching district and territory in the west and northwest for the purpose of increasing the differential between these rates and those from non-union western Kentucky mines. The commission said in its decision in the "lake-cargo" case that "It is no part of our duty to canvass and compare wage scales and other expenses and incidents of industrial operation." There is no question, however, as to the principal reason why mines in Pennsylvania, Ohio, Illinois and Indiana have been at a disadvantage in competing with those in West Virginia and Kentucky.

The former have been paying union wages, while the latter have been paying non-union wages which are much lower, and in consequence have been able to undersell the union mines in most of the markets of the country. Commissioner Hall, in a dissenting opinion in the lake-cargo coal case, said that sympathy for "those who have been caught in the undertow should not draw us away from the clear path of duty. Congress has not made of us a special providence." The majority of the commission did not in the lake-cargo case or the later Illinois-Indiana cases see the matter that way. It did not say that it reduced the rates from union mines partly to offset the disadvantage imposed upon them by the higher wages they have been paying, but this is actually what it did. In other words, it reduces the rates on coal and thereby makes it less easy for the railways to pay their present wages in order to make it more easy for the union mines to operate and pay higher wages than those paid by their non-union competitors. The railways are in no way responsible for the depression and strike in the union mines, but the Hoch-Smith resolution is made a pretext for helping out the union mines and the union miners at the expense of the railways.

In a decision rendered last week the commission ordered the rates on deciduous fruits from California to eastern destinations reduced 12 to 13 cents per hundred pounds. The California deciduous fruit industry was found to be a branch of agriculture that is in a state of depression within the meaning of the Hoch-Smith resolution. The commission said that the rates prescribed by it are "the lowest possible lawful rates compatible with the maintenance of adequate transportation service, and are necessary to promote the freedom of movement of the specified products of agriculture, now affected by depression." "Lowest possible lawful rates" plainly means rates lower than would be held reasonable excepting for special conditions in the deciduous fruit industry. In the case of this industry, as in that of coal mining, the railways have been in no way responsible for the conditions complained of. The decline in the

prices of deciduous fruits has been due to the large increase in their production. The principal increase has been in the production of grapes, which was excessively stimulated by the adoption of prohibition. Thus, our "special providence," at the expense of the railways, comes to the rescue of those who have got into business trouble by over-estimating the demands of an unlawful thirst, and uses a resolution of Congress as a pretext for making it less unprofitable to cater to a taste for violating an amendment to the Federal Constitution!

The policy of regulation now being followed by the commission is in striking contrast to that followed by it ten to fifteen years ago. Between 1906 and 1910 there was an average increase in wholesale prices of commodities of 13½ per cent and an average increase in wholesale prices of farm products of 29 per cent. Practically every industry in the country was prosperous. The railways in 1910 sought general advances in rates. The commission refused to grant them, holding, in effect, that advancing prices and increasing prosperity in industry did not justify advances in rates when the railways already were doing well. The result was that the percentage of net return earned by the railways began to decline and railway development with it. After a brief recession, prices stimulated by the war in Europe, began to increase again. In 1917 wholesale prices averaged 77 per cent higher than in 1913 and more than 100 per cent higher than in 1906. Farm prices averaged 90 per cent higher than in 1913 and almost 140 per cent higher than in 1906. The commission then granted a small advance in rates to the eastern lines, but in December, 1917, notified Congress that it could not or would not grant advances in rates corresponding to the advances in prices and railway costs that were occurring. In a few weeks the country had government operation of railways. Now, if advances in prices and increases in the prosperity of industry did not justify advances in rates ten to fifteen years ago, upon what principle do declines in prices and depression in some industries justify reductions of rates now?

No part of the industry of the country has suffered more distress within recent years than the railways of the northwest. There have been cases before the commission, and are now, for advances in some or all of their rates. Why does the commission consider it its function as a special providence to help out union coal mine operators and workers and deciduous fruit growers and not the northwestern railroads? The Hoch-Smith resolution did not repeal Section 15-A.

Commissioner Woodlock, in a concurring opinion in the deciduous fruit rate case, pointedly remarked that the Hoch-Smith resolution "twice instructs us that in adjusting rates care shall be taken to maintain an 'adequate system of transportation.' * * * The new standard of measurement for rates on agricultural products implies new standards for rates on other commodities. * * * The Hoch-Smith resolution is addressed to this commission, and not to the carriers. It is we who must readjust the rate structures according to the terms of that resolution, and we can not shift the burden to the carrier executives." But the commission has not begun to apply "new standards for rates on other commodities." In other words, it is not even giving full effect to the intent of the Hoch-Smith resolution, while the Constitution and Section 15-A—excepting the recapture provisions—have little influence with it.

The "men behind the law" certainly do become much more vital than the law itself when they begin to assume the possession of both the superiority to law and the economic omniscience that appertain to a "special providence."



Fig. 1. Dispatching Machine at Fostoria, Ohio, on the Ohio Division, New York Central Lines

N. Y. C. Installs First Complete Train Dispatching System

*Switches power-operated and train movements directed
by signal indication without written orders—
System controlled by dispatcher*

By B. J. Schwendt

Assistant Signal Engineer, New York Central Lines West and Ohio Central Lines, Cleveland, Ohio

ON July 25, a 40-mile heavy traffic section of road, consisting of 37 miles of single track and 3 miles of double track, between Toledo, Ohio, and Berwick on the Ohio Central Lines of the New York Central was placed under the direct control of a dispatcher who directs train movements entirely by signal indication. The new signal system supersedes the timetable and train order system which, with manual blocking, was in use. In this application it differs radically from the general practice in which a signal system is used merely for blocking, supplementing the timetable and train order system. Through a dispatching machine located at Fostoria, Ohio, the dispatcher operates the siding and crossover switches and the block signals along the line, and receives complete information as to the location of all trains. Written train orders and rights by class and direction are abolished. One train has no official knowledge of the presence of other trains on the road, but the dispatcher establishes meeting and passing points as the immediate conditions require. The normal traffic includes 12 fast and two local passenger trains and about 20 tonnage freight trains, including two local freights, per day.

This installation is believed to be the first and only

system complete in every respect for the dispatching of trains by signal indication. The system was designed and installed by the General Railway Signal Company, Rochester, N. Y., under the direction of Sedgwick W. Wight, commercial engineer for the signal company, and the writer.

Block Signals and Power Switches

Block signals of the color-light type are located as shown in a typical section illustrated by Fig. 2. The double track is signaled for the movement of traffic in either direction on both tracks, the absolute-permissive block (APB) plan of automatic control being used on double as well as single track. This control automatically prevents opposing train movements from siding to siding or from crossover to crossover and permits trains to follow each other from signal to signal. In addition to the automatic control, the signals at the ends of sidings and crossover switches are subject to the control of the dispatcher. The switch machine and signals at the end of each siding or at the end of each crossover constitute a controlled group which is virtually a small interlocking plant controlled by a single

lever in the dispatching machine. All opposing signals of each group are electrically interlocked against each other and the opposing signals of one group are electrically interlocked against the opposing signals of an adjacent group. Signal controls are selected through the switch machines so that switches must be in proper position before a proceed signal indication can be displayed. In other words, the controls are self-checking and the dispatcher, in controlling these groups, is only

one being required for each controlled layout. They also operate the miniature switches on the track diagram.

5. The *key switch*, located directly under the control lever, which is used to cut out the audible signal to an "OS" indication and also to prevent a signal from clearing the second time automatically if the dispatcher should wish to hold a following train.

The Manipulation of the Dispatching Machine

The dispatching machine automatically places before the dispatcher information as to the location of trains

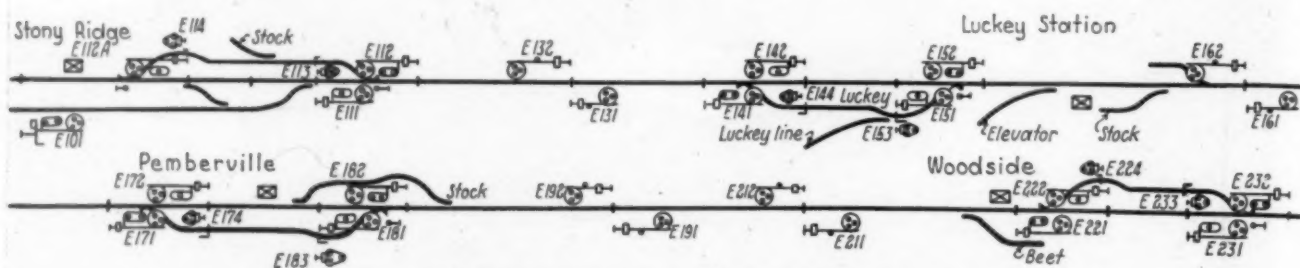


Fig. 2—Typical Section Showing Signaling Arrangement

able to permit train movements to be made if conditions on the roadway are safe.

The installation includes 20 single-switch controlled groups, counting the double track connections and 6 crossover controlled groups on the double track line, making a total of 26 groups operated by 26 levers in the Fostoria dispatching machine.

Control from Fostoria

The dispatching tower is a two story brick structure with basement, electrically lighted, with steam heat and modern plumbing. Figure 1 is an interior view on the

and gives him the means of controlling the movement of each train. Other information as to train delays or the movement of local or work trains, or trains about to enter the controlled territory is brought in through the telephone system.

The control levers are arranged in a horizontal row and operate in three positions: central, upward and downward. These positions control the roadway equipment as follows:

A lever in the central position causes the signals in the respective controlled group to assume the stop position, and the switch to remain in the position to which it was last operated.



Fig. 3—Controlled Siding Location

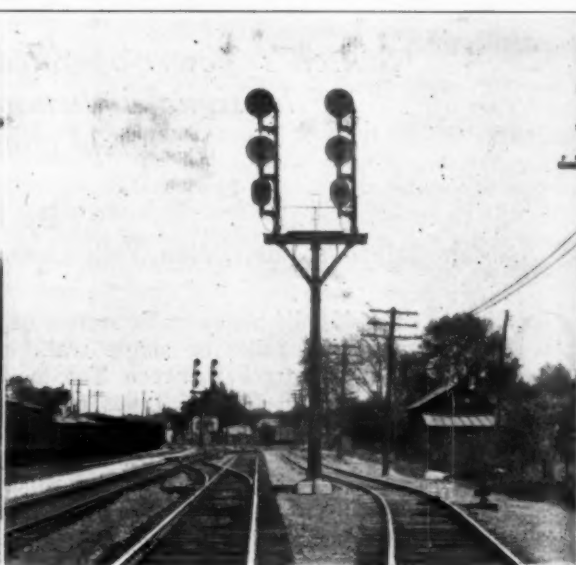


Fig. 4—Double Track Crossover Location

second floor, showing the dispatcher at work in front of the dispatching machine. The close-up view of a section of the machine shows five features of importance, namely:

1. The *automatic recorder*, which is located on top of the dispatching cabinet and produces a graphic record of the movement of trains.
2. The *track diagram*, which visualizes for the dispatcher the entire territory, the location of trains and the position of the power-operated switches.
3. The *light indicators*, which show the dispatcher what is taking place on the line and the direction of traffic.
4. The *control levers*, which operate the switches and signals,

A lever in the upward position causes the switch to move to the position for the diverging route (if not already in that position) and permits the corresponding signals to give proceed or caution indications, if the respective blocks are not obstructed.

A lever in the downward position causes the switch to move to the position for the main track route (if not already in that position) and permits the corresponding signals to give proceed or caution indications, if the respective blocks are not obstructed.

Trains are represented by plugs which carry removable cards on which are indicated the train numbers and direction of movement. The plugs, called train tokens, are inserted in jacks or holes located along the track

diagram. The train tokens are moved by the dispatcher as he receives information from the roadside by means of the light indicators which are located directly below each passing track switch on the control board and are known as "OS" indicators. An indicator lights when a train passes onto a short track section in which the passing track switch or crossover is located and remains lighted until the train clears this track section, provided the control lever is left either upward or downward.

The "OS" indicator also informs the dispatcher when the switch responds to the lever movement by giving a brief but distinct flash when the switch points open and by flashing again when the switch points close. To call the dispatcher's attention to something having happened which may require action on his part, a single stroke bell sounds whenever an "OS" indicator lights.

Key switches, located directly under the control levers, are used for two purposes: First, when thrown downward, a key switch cuts out the audible signal of the "OS" indicator above the lever; second, when thrown upward a key switch transforms the roadside signal into a "stick" signal and the "OS" indicator will remain lighted after the train has passed off of the

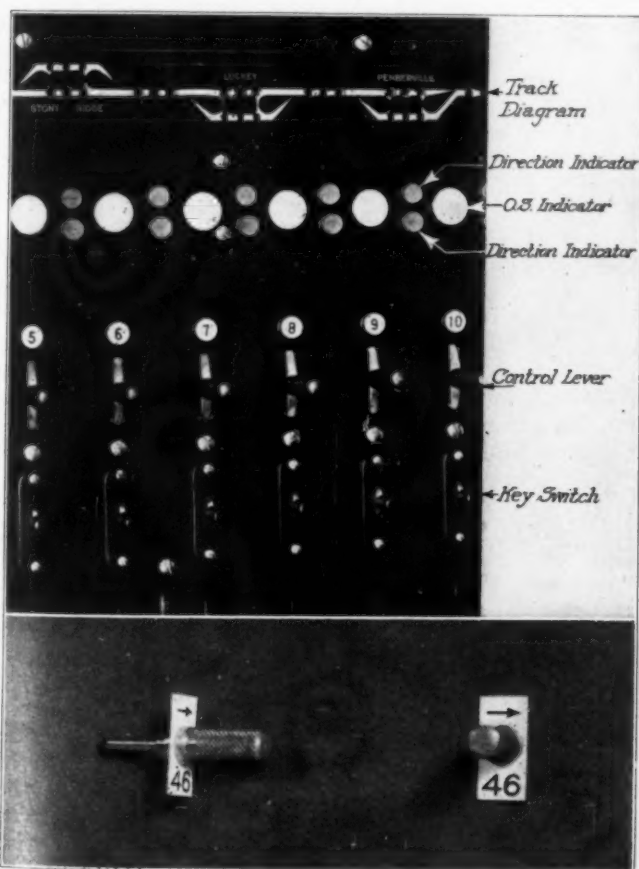


Fig. 5—(Above) Close-up of a Section of Control Panel on Dispatching Machine

Fig. 6—(Below) Train Token for Track Diagram

track circuit, and until either the control lever is restored to the central position or the key switch is put back. By "stick" signal is meant a signal which will not clear after being put to stop by a train until the control lever is again operated. This "stick" feature is of value when the dispatcher wishes to let one train pass and stop a second train without further attention on his part; or when he is away from his desk for a period and wishes to pick up the location of trains quickly on his return.

Explanation of Operation for a Meet

Figures 7 to 12 inclusive show the manipulation of the dispatching machine and what takes place on the line as two trains approach and leave their meeting point.

Figure 7 shows train No. 2 on the main line between siding switches at Stony Ridge, train token 2 is similarly located on the track model, lever 6 is down and lever 7 up and the signals are clear for a movement of train No. 2 into the siding at Luckey.

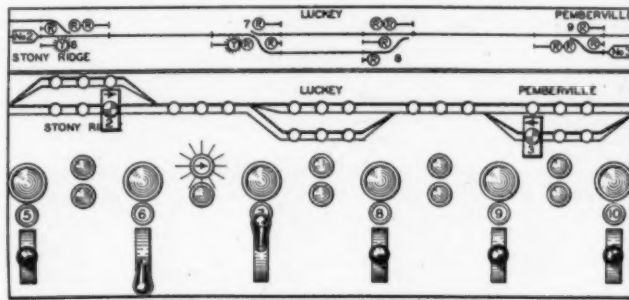


FIGURE 7 ROUTE CLEAR FOR TRAIN 2 TO MOVE FROM STONY RIDGE TO LUCKEY; TRAIN 3 ON SIDING AT PEMBERVILLE.

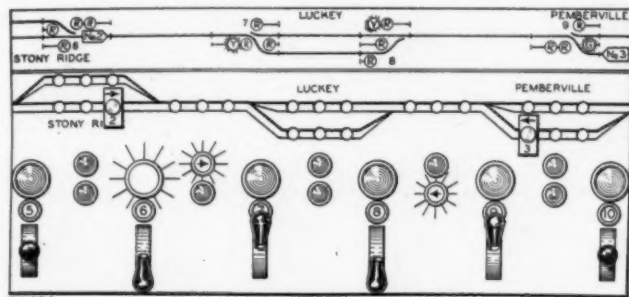


FIGURE 8 TRAIN 2 LEAVING STONY RIDGE AND ROUTE IS CLEAR FOR TRAIN 3 TO MOVE TO LUCKEY.

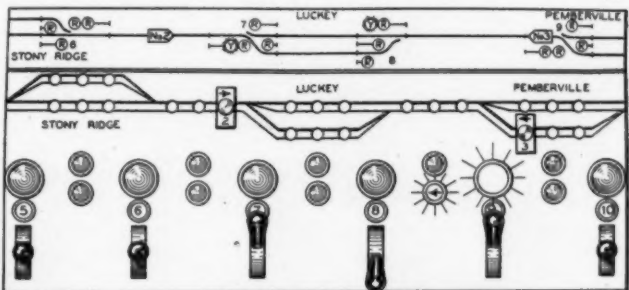


FIGURE 9 TRAIN 2 HAS NOT ARRIVED AT LUCKEY AND TRAIN 3 IS LEAVING PEMBERVILLE.

Figs. 7, 8 and 9—Illustrating Train Movements for a Meet

Figure 7 also shows train No. 3 on the siding at Pemberville.

The dispatcher next operates lever 9 upward and lever 8 downward which lines up the switch at Pemberville and clears the signals for the movement of train No. 3 to Luckey, as shown in Fig. 8. In the meantime, train No. 2 is leaving Stony Ridge, the dispatcher being informed of this by the illumination of the "OS" indicator above lever 6.

The "OS" indicator above lever 6 then goes dark, indicating that train No. 2 has left Stony Ridge. He then advances token 2 to a location near the point from which he will receive his next "OS" from this train and restores lever 6 to normal, as shown in Fig. 9. Train No. 3 is leaving Pemberville, as shown by the "OS" indicator above lever 9.

When the "OS" indicator 9 goes dark, indicating that train No. 3 has cleared the siding at Pemberville, the dispatcher advances token 3 and restores lever 9 to normal, as shown by Fig. 10. Train No. 2 is now pulling into the siding at Luckey, as shown by "OS" indicator 7.

Train No. 2 is in the clear at Luckey, the dispatcher operates lever 7 downward, and lever 6 downward, which lines up the route for the movement of train No. 3 to Stony Ridge, as shown in Fig. 11. "OS" indicator 8 is now illuminated, which indicates the arrival of train No. 3 at Luckey. When "OS" indicator 8 goes dark, the dispatcher advances token 3, moves lever 8 upward and lever 9 downward which lines up the route for the movement of train No. 2 from the siding at Luckey to Pemberville.

Special Features for Checking

If two trains had been moving in the same direction between Stony Ridge and Luckey at the same time, the token for the first one would have been located, as shown in Fig. 9, and that for the second train in the next jack to the left.

As the opposing signals are interlocked against each other, the direction in which traffic can move is dependent upon the sequence of lever movements. For instance, when the dispatcher operated lever 6 and then lever 7, all signals cleared for a movement of train No. 2

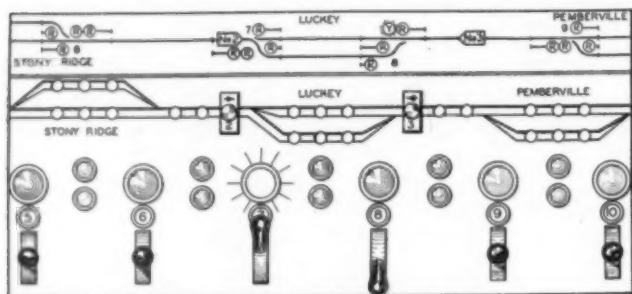


FIGURE 10 TRAIN 2 IS PULLING INTO SIDING AT LUCKEY AND TRAIN 3 HAS PASSED BEYOND SIDING LIMITS AT PEMBERVILLE.

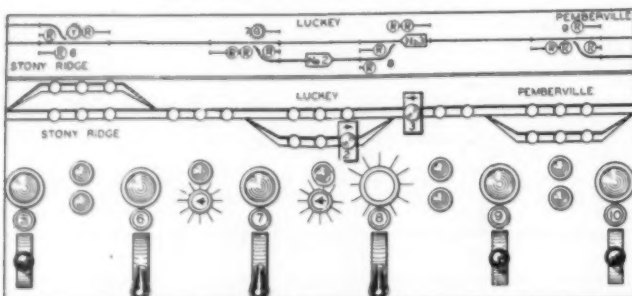


FIGURE 11 TRAIN 2 IS IN THE CLEAR AT LUCKEY AND TRAIN 3 IS ARRIVING AT LUCKEY WITH ROUTE CLEAR FOR MOVEMENT TO STONY RIDGE.

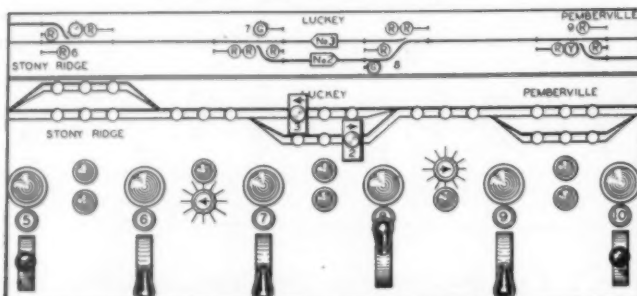


FIGURE 12 TRAIN 3 HAS PASSED WITHIN SIDING LIMITS AT LUCKEY AND ROUTE IS CLEAR FOR THE MOVEMENT OF TRAIN 2 TO PEMBERVILLE.

Figs. 10-12—Illustrating Typical Train Movement

from Stony Ridge to Luckey, as shown in Fig. 7. After train No. 2 had moved into the siding at Luckey, he operated lever 7 and then lever 6, which cleared all signals for a movement of train No. 3 from Luckey to Stony Ridge, as shown in Fig. 11.

In order that the dispatcher may know at all times the direction of traffic set up between any two adjacent controlled groups, direction indicators are provided. With the route set up for a movement from Stony Ridge to Luckey the top indicator between levers 6 and 7 displays an illuminated arrow pointing to the right, as shown in Fig. 7. With the route set up for a movement in the reverse direction, the bottom indicator displays an arrow pointing to the left, as shown in Fig. 11.

Another bit of helpful information for the dispatcher is given by the movable switch points on the track model which move when the control levers are moved to the upward or downward positions but do not move

when the control levers are returned to the central positions so that the last position to which any switch has been operated is always indicated.

It should be noted that the dispatcher is unable to create an unsafe condition by the wrong manipulation of levers. He is only able to permit train movements to be made, provided conditions on the line are safe. In other words, each signal has a triple control, namely: (1) Automatic control, (2) Switch control—switches must be in proper position before the signal indication can be displayed, and (3) Manual control—consent of dispatcher must be secured. The graphic train sheet automatically produced by the recorder, keeps before him a record of elapsed time of each train between adjacent "OS" points. Train numbers shown on the graphic sheet are written in by the dispatcher as the graphs are being made and serve as quick identifications.

It will, therefore, be seen that the dispatcher, by observing the information automatically placed before him and by operating these control levers, controls the movement of trains within his territory, and establishes his meeting and passing points accurately, with the result that trains are run over his district in much less time than under the former system employing written train orders. Many interesting comparisons are occurring daily, one of which is cited here: Freight train No. 94 left Toledo at 9:30 p.m., July 25, and the engine was not shut off until it arrived at Fostoria, taking siding for two meets and all trains keeping moving while making these meets. As a result of this prompt movement of No. 94, the crew was turned at Bucyrus for a return trip to Toledo, the loop mileage being 134.

It is recognized that a remotely controlled power-operated switch is not well adapted to the switching of cars unless some convenient means of hand operation is provided. It is too slow for this kind of work and it is also difficult, if not impossible, to know when the switch should be thrown. The G. R. S. dual-control selector overcomes this difficulty by making it possible for the train crew, under prescribed rules, to operate switches by hand when switching is to be done. All of the 32 power-operated switches from Stony Ridge to Berwick are so equipped. A switch lamp with day disks mounted on the target stand is used at each dual control switch, although the lamp is lighted only when a dual control switch is being hand-operated. When operated by the switch machine, the signals tell the story.

Telephones for Switching and Work Trains

Telephones are not required in the regular dispatching of through movements of trains under this system except to announce to the dispatcher the approach of trains about to enter the territory and to enable the dispatcher to announce to other districts when trains will arrive from the controlled territory; they are also used for the handling of work trains, the switching of cars and for communication with train crews in cases of emergency. Telephones connecting directly with the dispatcher's office are available at: (a) each passing siding switch, crossover or controlled group of switches and signals, (b) each switch (not located in a controlled group) where a train can clear the main track, (c) each intermediate pair of signals, (d) each way station and (e) the general yardmaster's office at Stanley Yard.

If it should be necessary for a train to do work between certain points, its crew obtains the consent of the dispatcher who designates the working and time limits and protects with stop signals. If a train should have occasion to do switching at the end of a passing

[illegible]

siding, permission is obtained from the dispatcher. He gives over, as it were, for a specified time, the portion of the line required for the work and protects with stop signals. If a train should go into the clear at an outlying switch not controlled by the dispatcher, it does so with his knowledge and consent and must not come out without his consent. Trains cannot enter the controlled territory without the dispatcher's consent. If they enter on the main track or other signaled track such consent is manifested by signal indication.

The new system was placed in service in *one minute*, at which time all trains in the district stopped, and then immediately proceeded in accordance with a signal indication. It so happened that two trains were stopped. Within 10 minutes the reports of all field men had been received by telephone, indicating that all apparatus was in service as intended.

Improved Train Indicators on Brooklyn Subways

THE illuminated track model (familiar to all who have visited any of the large terminal signal cabins where this facility is in use) which keeps the towerman constantly informed, as to each track circuit in his territory, whether that section of track is or is not occupied by a train (or car), has been elaborated, in the chief dispatcher's office at Brooklyn, N. Y., of the Brooklyn-Manhattan Transit Company, so that the indicating lamp not only shows the presence (or absence) of the train, but also its location, whether at one or the other end of the track circuit and whether in motion or at a standstill; and the dispatcher, by following the changes in the intensity of the light from

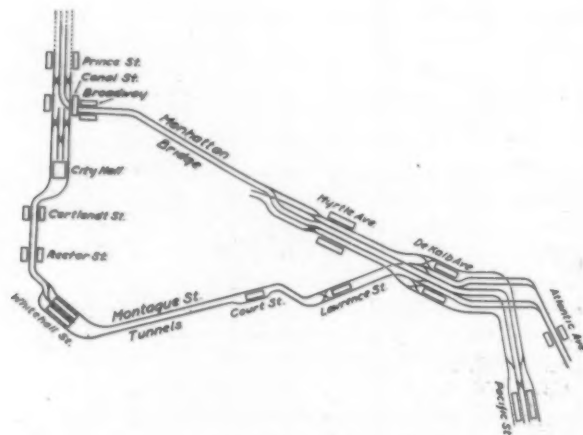


Fig. 1—B-M-T Subways, New York

Lines of the Brooklyn-Manhattan Transit Company, (subway and elevated) between Pacific street, Brooklyn, and Prince street, Manhattan.

the lamp can tell in which direction the train is moving. With experience an observer can estimate its speed. The Brooklyn dispatcher has at hand, at any instant, a record of the movement of every train in his territory, some of which is several miles distant.

The arrangement of the indicating lights, and their connections to the track circuits, have been devised and developed by G. C. Whitney, formerly with the Brooklyn-Manhattan Transit Company, but now chief of the division of signal engineering for the New York State Transit Commission (New York City). Important features of the arrangement have been patented and

patents on others are pending. The lamps are "inductively coupled" to the track circuit between the source of power and the rail, and are energized continually. The current coming to them is, however, variable in accordance with whether the track is or is not occupied and whether the train is at the near or the far end of the section. When the track is wholly unoccupied, the lamps receive so little energy that they are dark. By the entrance of a train into the section, the car-wheel shunt increases the flow and this is reflected in the indicator lamp, the filament glowing dimly. As the train proceeds through the track section, the lamp grows



Fig. 2—Section of Train Indicator

brighter. With a train moving in the opposite direction, the lamp would show full brilliancy at first, but would be fainter as the train proceeded. The arrangement requires so little power that the mileage of track possible to indicate in a single tower is practically unlimited.

On an electrified road (as in the case of the Brooklyn lines) the propulsion current, by affecting the indicating current, informs the dispatcher whether or not the train is using power.

The board containing this track model is about 6 ft. wide by 4 ft. high and is mounted vertically on the wall of the office. The general shape of the lines on the model is as shown in Fig. 1. Prince Street, on Broadway, Manhattan, is about two miles, in an air line, from the Brooklyn headquarters. The length of road now covered is $7\frac{1}{2}$ miles including 19 miles of track. The average length of track circuit per indicating lamp is 475 ft. Provision is made for future additions to the Board to include the portion of the system known as Center Street Loop between Chambers Street, Manhattan and Williamsburg Bridge. This will add $1\frac{1}{2}$ miles of road, 10 miles of track and 141 indicating lamps to the portion at present in service.

A small section of the board, including the junction at DeKalb Avenue, is shown in Fig. 2. Some of the lights are colored to facilitate distinction between the indications of different tracks. The number of lamps now in service is 215.

LOCOMOTIVE ENGINEMEN AND FIREMEN, at a meeting held in Altoona, Pa., on August 9, adopted a resolution asking railroads to run no unnecessary trains on Sunday. The meeting is said to have been participated in by members of both of the brotherhoods, that of the engine-men and that of the firemen, and the votes for the resolution came from 22 lodges. This action must be confirmed by the general chairmen.

An Outstanding Record of Achievement

A review of last six years' performance shows intensive utilization of equipment

By M. J. Gormley*

Chairman, Car Service Division, American Railway Association

THE Car Service division is constantly studying the question of efficient use of freight car equipment. With railroads, as with industry, there must be a continuing effort to obtain a greater output per unit of overhead charges and thereby reduce operating expenses.

Reduction in operating expenses of railroads is in the direct interest of the public. Therefore, if the railroads by themselves, and in co-operation with the shippers, can produce more transportation with less overhead expense it appears clear that methods that will bring about that result should and undoubtedly will meet with the wholehearted approval and support of all interested.

How Result Is Accomplished

The railroads handled the largest traffic in their history in 1926 without any car shortage; in fact, there was always a very large surplus of equipment. The railroads were able to accomplish this result by reason of:

(1) The expenditure of \$4,553,477,752 in the past six years, of which \$2,450,751,648 was for equipment and \$2,102,726,104 for other improvements in the interest of more efficient and economical operation.

(2) These capital expenditures put 608,777 new or rebuilt cars and 11,049 locomotives in service and retired 552,358 cars and 13,247 locomotives between January 1, 1923, and May 1, 1927, with the result that there has been a net increase of 56,419 cars (of which 52,320 are refrigerator cars) and a net decrease of 2,198 locomotives. This same period shows an increase in the carrying capacity of equipment of 2.28 tons, and an increase in the average tractive power of locomotives of 4,126 lb. Attention is directed to the fact that the modern 100,000-lb. capacity box car, A. R. A. standard design, weighs approximately 3,000 lb. less than the 80,000-lb. capacity car built by some roads a few years ago, including cars built by the railroad administration. These new cars with this lesser dead weight are of equal or greater strength by reason of improved design. The 100,000-lb. capacity box car weighs from 11 to 13 per cent more than 60,000-lb. capacity rebuilt car with steel underframe, but it has a carrying capacity approximately 94 per cent greater.

(3) During 1926 there was an average surplus of 205,054 cars, with a peak surplus of 310,155 and a minimum surplus of 79,016. There was in that year an average surplus of 5,123 locomotives with a maximum surplus of 5,978 and a minimum surplus of 3,841.

(4) Modern and larger capacity equipment plus shipper and receiver co-operation resulted in an average carloading in 1926, per car of carload freight, of 35.1 tons, as compared with 34.4 tons in 1925, 34.0 tons in

1924, 34.5 tons in 1923, 33.3 tons in 1922, 33.7 tons in 1921 and 34.5 tons in 1920. These influences also resulted in reducing the amount shippers paid for demurrage to the total of \$8,379,397 as compared with the high demurrage paid in 1920.

(5) The railroads greatly reduced the amount of equipment awaiting repairs.

(6) The railroads increased the miles per car per day from 25.1 in 1920 to 30.4 in 1926. This average includes all cars, those awaiting repairs, all surplus cars and also takes into account the time cars are in the hands of shippers for both loading and unloading.

As a result of these factors the operating expenses of the railroads in 1926, the year of heaviest traffic, decreased \$1,174,000,000 as compared with the expenses in 1920.

As an indication of what the retirement of the obsolete and inefficient car and locomotive means in the way of maintenance of equipment alone, we find with an increase of 6.5 per cent in the revenue freight originating in 1926 as compared with 1920, that there was a decrease of \$309,000,000, or 19.5 per cent in the maintenance of equipment item. With an increase of 4.6 per cent in the revenue freight originated in 1926 as compared with 1923, there was a decrease of \$184,000,000 in the maintenance of equipment account.

The Shippers Benefit

The natural question in the mind of the public now would be—"Who got the benefit of the increased efficiency in operation that brought about reduction in operating expenses?" We find that there has been a gradual reduction in freight charges, in fact, a comparison of the revenue per ton mile figures shows a decrease in the freight charges paid by the public in each of the past five years as compared with 1921, as follows:

Year	Amount
1922	\$332,500,000
1923	656,236,000
1924	617,580,000
1925	736,589,000
1926	856,994,000
	<hr/> \$3,199,899,000

In other words, \$3,199,899,000 more money would have been paid in this period to the railroads than was paid by the public had the revenue per ton mile paid in each of these five years been the same as the revenue per ton mile in 1921. This could not have been possible except for the increased operating efficiency that brought about decreased operating expenses.

Disregard entirely the benefits accruing to the public by these indicated decreased freight payments to the railroads. Do we not find ample justification for everything that has been done in the better service provided to the shippers, which has resulted in large reductions in their expenses by reason of reduced capital tied up

*From an address delivered before the Midwest Shippers' Regional Advisory Board at Chicago, July 14.

in inventories, not only in stocks on hand but also in stocks enroute? The shippers and receivers themselves, we recognize, have played a prominent part in the more efficient handling of equipment which made this service possible. Many statements have been made showing that the savings effected in industry through better railroad service certainly would far outweigh the benefits that resulted from the reduced freight charges.

One Hundred Thousand Fewer Cars

With all these facts before it, the car service division considered it its duty to present a report to the board of directors of the American Railway Association on May 26, 1927, stating that in its opinion, provided certain things were accomplished, the business of the country could be handled for some time to come with 100,000 less box and open top cars. These certain things are as follows:

- (1) That there be a continuation of the replacement of the smaller capacity and less efficient cars with cars of modern type.
- (2) That there be a continuation of the present plan of maintaining equipment at the highest practicable point, as determined by the necessities on the individual railroads.
- (3) That there be a further increase in the miles per car per day of at least one mile.
- (4) That further intensive consideration of the load per car be given by railway management and all the advisory boards with a view of increasing the tons per car to the greatest possible extent and by not less than an average of one ton per car:
 - (a) That the receivers wherever practicable buy in carload rather than in specified quantities:
 - (b) That shippers load cars to their maximum carrying capacity where they are not limited by the receivers' requirements.
- (5) That careful supervision on the part of industries be given to the loading and unloading of equipment with a view of making a reduction of at least 20 per cent in the amount of demurrage assessed during 1926.

The Loading Results

Let us look at some of the loading results. Take the items of coal, sand, stone and gravel. We find that if these commodities had carried only the same average load in 1926 as in 1920 the railroads would have had to handle 801,000 more carloads than they did to move the 1926 tonnage of these commodities. Again, take the item of wheat. Had the tons per car of 1926 been the same as in 1920 it would have required the handling of 19,477 more cars to have moved the 1926 tonnage. One could go into this analysis to great lengths in jus-

tification for what has been done. The question of track room occupied at loading and unloading stations, in terminals and elsewhere, is another feature and one could find myriads of instances on the credit side of the ledger due to the modern type of equipment.

No Relation to Minima

Now this campaign for the heavier loading of equipment, which has been advocated by the car service division, is nothing new. It has been going on for 20 to 30 years. It always has and probably always will raise in the minds of someone the question of where the tariff minima are going. We wish it to be thoroughly understood that the car service division, in connection with the work assigned to it by the board of directors of the American Railway Association to bring about better utilization of equipment, has nothing whatever to do with the question of minima and does not want to have. Therefore, the endeavors to increase the load per car have absolutely no relation to the question of tariff minima. That is a question entirely outside of our jurisdiction.

Anyone who takes the trouble to analyze this utilization of equipment thoroughly will realize, we believe, that if we wait for better utilization of equipment until we can get an increase in the minima by agreement with shippers or through the order of regulating authorities we will never obtain the desired result. The results that ought to be accomplished will be brought about only by co-operation between shippers and railroads and a thorough realization on the part of the public that everything it does to effect a more economical use of equipment is directly in its own interests, and it will never be accomplished by attempting to force an increase in the tariff minima in opposition to the expressed desire of shippers. I believe this statement should remove any possibility of a misunderstanding in the minds of shippers as to our plans or the methods we have adopted to accomplish the desired result.

There is not a doubt in the mind of anyone associated with the Car Service division, and neither do we believe there is any doubt in the minds of most of the transportation men of the country that what we have recommended as to the reduction in the amount of equipment can be accomplished provided the things we have enumerated are carried out.



C. P. R. Lachine Bridge Over the St. Lawrence, Near Montreal

Track Depression Work at Detroit Imposes Many Problems

Disadvantages of this method of grade separation clearly shown in Grand Trunk's project



Viaducts of Well-Proportioned Outline Retaining Walls and Well Sodded Slopes Give the Track Depression a Pleasing Appearance—In the Insert: Gauntlet Track Through the Old Subway at Jefferson Avenue

TRACK depression presents certain objectionable features not encountered in track elevation. For this reason the railroads have generally favored track elevation as a solution of urban grade separation problems. In fact, track depression has been undertaken only in those cases where it was of particular advantage from the standpoint of track grades or where public authorities have refused to accept any other plan.

This situation is well illustrated in the Dequindre track depression project on the Grand Trunk in Detroit, Mich. Equally favorable track profiles could be had with either depression or elevation of the line and because of the inherent objections to track depression, the railroad contended for track elevation but was eventually forced to enter into an agreement with the city for a plan that provided for the lowering of the tracks. That the objections cited by the railroad were genuine and introduced many difficulties, became apparent after the work was actually under way and gave rise to the development of many special measures to meet the difficulties encountered.

Location of the Dequindre Line

The Dequindre line of the Grand Trunk is the local name in Detroit for the Detroit, Grand Haven & Milwaukee, which enters Detroit from the north and extends across the city in an almost due north and south line to the Detroit river where it terminates in the Brush street passenger station and a local freight terminal, docks and ferry slips bordering on the river between Rivard and Brush streets. The territory traversed within the city is relatively flat and the grade line, established at the time of construction during the fifties, varied but little from the natural ground level, which

is on a gentle slope toward the river and all but three street intersections were at grade. Two of the streets are important heavy traffic thoroughfares. Jefferson avenue, 120 ft. wide, is the main traffic route from the business center of Detroit to the eastern section of the city, while Gratiot avenue is a diagonal artery extending to the northeast and comprises the southern end of the state highway to Port Huron, Mich.

Jefferson avenue is at an elevation of about 25 ft. above the level of the water in the river and occupies the crest of the slope which extends from the river bank to the general level of the city. Advantage was taken of this physical condition in 1889 to lower the track at the south end of the Dequindre line for a sufficient distance to the north to separate grades at Jefferson avenue and at the two streets immediately to the north, Larned and Congress streets. North of Congress street the track was carried out of the cut on a one per cent grade and Fort, Lafayette and Monroe streets were depressed to cross the tracks at grade in the cut. Street viaducts provided in this original grade separation project gave a vertical headroom of only 15½ ft. The timber trestles provided for this purpose at Larned and Congress streets were constructed for two tracks but the steel span constructed on stone

The second plan proved more economical and was adopted.

Cut Has Full Slope in Most Places

Along most portions of the construction district the railroad was successful in obtaining sufficient additional right-of-way, approximately 35 ft. on each side, to permit of full slopes. In some cases the slopes had to be supplemented by retaining walls for a part of the height and on one piece of property the railroad was compelled to take down part of two buildings and replace them on a wall extending to the new grade. In several instances where the adjacent property owners were reluctant to dispose of any part of their holdings, agreements were made under which the cut slopes were made on the adjacent private property with space next to the right-of-way line for a service track, in consideration of which the railroad introduced an additional span in one of the adjacent street bridges to accommodate this track.

One of the objections raised to track depression is that it exposes the line to the disadvantages of a location in a cut. For example, it was developed early in the excavation of the cut on the Dequindre line that the material encountered, sand and yellow and blue clay, had a considerable tendency to slide, a condition which gave promise of no end of trouble in maintenance. To avoid this difficulty, toe walls six feet high were built at the foot of the slope throughout a large part of the track depression territory, the space behind these walls being back-filled to form a berm about nine feet wide.

The distinctive feature of this construction is the

type of wall has been installed on this project to the extent of 26,000 sq. ft. Some of the walls are as much as 17 ft. high and the construction is said to have proved very satisfactory.

City Demanded Viaducts for all Streets

Although much of the territory traversed is a low-grade residential district in which the streets carry an exceedingly light traffic, the city authorities insisted that viaducts be provided at once for all streets intersected, notwithstanding the readiness with which additional overhead structures can be provided subsequent to original construction in any case of track depression. All of the structures provide for not less than four tracks and a few are equipped with additional spans for a fifth track. In eight of the viaducts the structure consists of a single span 54 ft. center to center of bearings, supported on concrete abutments, while the others are two-span structures supported on abutments and an intermediate bent, each span being 31 ft. center to center of bearings. The abutments are all of the mass concrete U-type, while the piers are of a thin reinforced concrete section provided with arch openings 7 ft. 8 in. wide.

All of the substructures are supported on pile foundations, using piles 50 ft. long and with a design loading of 15 tons per pile. The piles were driven by a steam hammer and received from 25 to 48 blows for the last foot of penetration.

The two-span structures were provided where minimum floor thicknesses were especially needed to avoid excessive depression of the tracks or elevation of the



Trucks Are Being Used for the Disposal of the Material Excavated from the Cut

type of wall used, not only for these toe walls but for all retaining walls, namely, Federal precast concrete cribbing manufactured by the Federal Cement Tile Company of Chicago. This cribbing is of a two-piece construction with Y-shaped headers and with stretchers so placed as to present a solid face except for slots between the courses to facilitate drainage. This construction was adopted after studies demonstrated its economy as compared with solid poured-in-place walls and because its construction offered a minimum of interference with the grading work and the operation of trains during construction. Up to the present time this

streets. In these the superstructure consists of 20-in. I-beams encased in concrete. This construction, together with the pavement, provides a floor thickness of only three feet. However, to make this possible in streets having street car tracks, it was necessary to resort to a special construction involving the use of 12-in. by 12-in. creosoted timber stringers under each rail, as shown in one of the drawings.

The superstructure of the single-span bridges consists of plate girders supporting a floor system of floor beams and stringers, framing into the girders. The sidewalks are carried on cantilever brackets and all of

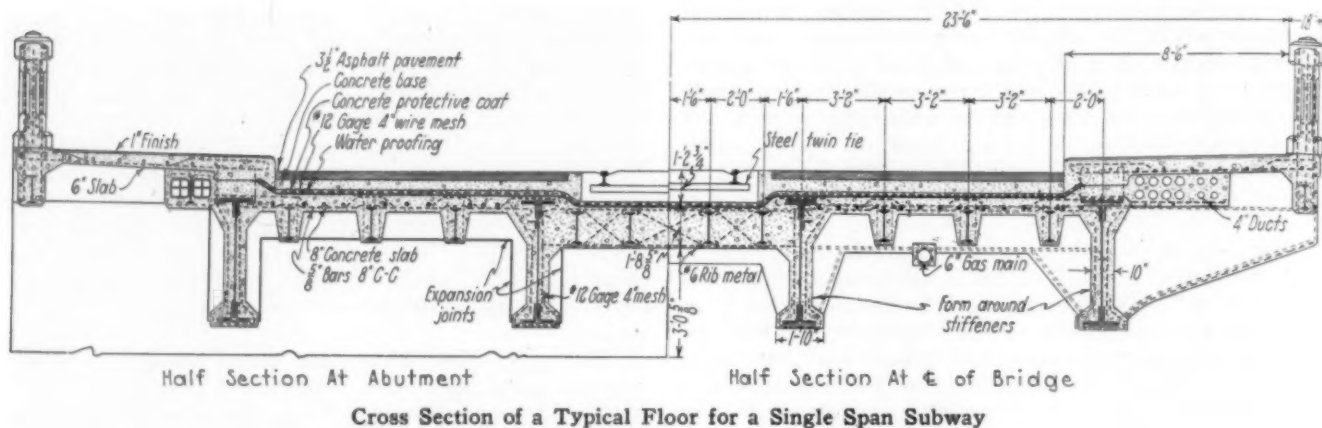
the steel members are encased in concrete while the floor is framed between stringers with reinforced concrete.

Structures Designed for Heavy Loads

The structures were designed for a concentration of 18-ton trucks, each assumed to occupy a space 9 ft. wide by 25 ft. long, with two-thirds of the weight on the rear axle and allowing 25 per cent additional for impact. The portions of structures carrying street car tracks were designed for a series of 50-ton street cars

time as temporary over-crossings to take care of street traffic during construction were provided only at Jefferson street and Gratiot avenue.

An illustration of a typical stage of the work is afforded by the conditions at the end of 1926. At that time the excavation had been completed as far north as Sherman street and all of the viaducts from Jefferson avenue to Sherman street had been completed, while the temporary run-off from Sherman street to Gratiot avenue necessitated the closing off of street traffic on



Cross Section of a Typical Floor for a Single Span Subway

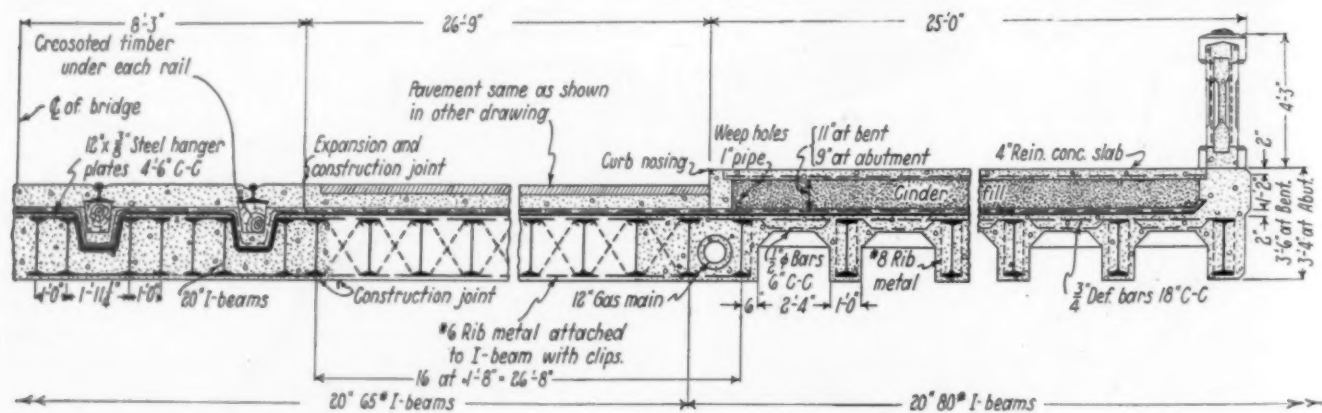
with trucks spaced 30 ft. center to center, plus 50 per cent impact. The sidewalk portions were designed for a uniform load of 100 lb. per sq. ft.

The portions of the bridge decks under the pavements are protected by membrane waterproofing covered with a protective coat of concrete upon which the paving is placed. Bridge members are protected directly over the center line of each track by a blast plate. In the earlier structures this was made of cast iron held in place by 3/4-in. bolts provided with cast iron heads. In the newer structures the blast plate is made by in-

Maple, Chestnut, Antietam streets until the excavation was carried further north and additional viaducts were completed.

How Excavation Was Handled

The excavation is being done by a Bucyrus 50 and a Marion 30 shovels, taking out the cut in two lifts of 10 ft. each with one cut on each half of the excavation for each lift. Because of the long rail haul to any point where the soil could be unloaded, the added congestion introduced by dirt trains and the complica-



Cross Section of One-Half of the Floor for the Jefferson Avenue Subway—An Example of Floor Construction for Minimum Thickness

creasing the thickness of the concrete member by an equivalent amount.

The project is being carried out in accordance with a plan under which the work was started at the south end in 1923 and prosecuted progressively toward the north, concentrating the work in any given year to a section of such length as can be carried to completion in a year's time. To this end temporary run-off grades of 2 1/2 to 3 per cent are used between the old track level and the new depressed level so that traffic will be interrupted on as few streets as possible at any given

tion of the temporary track layout in the construction district, the plan of loading the excavated material out on cars was abandoned in favor of the use of five-ton Mack trucks which haul the earth from the shovels to the river front where it is taken over by the city and carried in scows to Belle Isle for use in the extension of the city's island park. With this arrangement it had been found possible to handle traffic with but a single track within the limits of the distance in which excavation is in progress at any given time.

The material is a yellow and blue clay that breaks in

vertical cleavage planes but has to be shored where it is cut on steep slopes for the abutment construction. Pockets of sand are encountered which lead to overbreaks and other difficulties. Water also adds to the trouble and pointed to the need of a well-planned drainage system, as described later. It also resulted in several instances in a swelling action of the foundation for certain of the viaducts such that pile driving operations resulted in an appreciable lifting of some of the piles previously driven at a distance of 70 ft.

Building the Concrete Crib Walls

This foundation problem apparently had no counterpart in the construction of the concrete crib retaining walls which were placed directly on the ground, except that walls over eight feet high were set on concrete sill pieces 12 in. wide by 4 in. thick. Units were delivered in gondola cars and unloaded with a steam shovel by means of a chain attached to the dipper, being either set directly in the wall or stored temporarily in the event that the construction program interfered with immediate erection. With a force of from four to six men, divided between the car and the wall, it was possible to erect approximately 700 to 900 sq. ft. of wall surface per day. The nature of the work often made it necessary to call the men off this work for various periods of time, but such interruptions introduced no difficulties and resulted in no decrease in the quality of the construction.

On the work carried on in 1926 and 1927 a small gasoline crane has been substituted for the steam shovel in the erection of the wall unit. This crane, with two men in the car, a craneman and two men placing the units in the wall, has proved much more rapid than the use of the steam shovel, as under favorable conditions, as much as 1,800 sq. ft. of wall surface has been placed in a day of nine hours. The general average of the work with the crane, however, was approximately 1,000 sq. ft. of wall surface per day. Including a charge of seven dollars per hour for the rental of the crane, the erection cost totaled less than nine cents per square foot wall area.

All work train service within the limit of the district in which work is in progress is handled by a Plymouth gasoline locomotive in charge of a work train conductor but operated by the employees of the contractor. A side track is provided within the limits of the work on which loads are set out and empties are picked up by regular switch crews but the cars are spotted for unloading by the gasoline locomotive.

Elaborate Provision for Drainage

Drainage of the cut was given careful study and led to the development of a thoroughgoing drainage system. Three lines of eight-inch tile drain were provided below sub-grade, one on the center line of the roadbed and one outside of each outer track. These lead to catch basins on each side of each viaduct where eight-inch laterals carry the water to a main sewer laid between the two east tracks. This sewer is constructed of Massey Class B concrete pipe with tongue and groove joints, having a maximum diameter at the lower end of the pipe line of 36 in. It is carried down to the south end of the cut at Orleans street whence it follows that street to an off-fall at the river.

The roadbed is being excavated to a depth of 30 in. below base of rail and is then back-filled with 12 in. of cinders on which the track will eventually be surfaced with 12 in. of stone ballast under the ties. However, as surfacing during the course of maintenance has a tendency to raise the track and as this would result

in reducing the established headroom under the viaducts, the tracks have been surfaced at an elevation six inches below final grade line.

The track depression work between Jefferson avenue and Hale street is estimated to cost \$5,500,000. It involves 1,200,000 cu. yd. of excavation and 140,000 cu. yd. of concrete construction. Under the agreement with the city, the railroad pays 75 per cent and the city 25 per cent of all construction expense, except that each pays in full for any improvements or additions to its own facilities over those existing at the time that the work was started. The city also assumes all liability for damages claimed by adjoining property owners. Public service companies pay the cost of all changes required in their utilities.

The work is being carried out under the general direction of J. A. Heaman, chief engineer of the Grand Trunk, Detroit, Mich., the construction being under the supervision of F. P. Sisson, division engineer. A. Norman Laird is in charge of the design of the structures and originated the type of concrete cribbing used on the work. All of the work, including the track laying and surfacing, as well as the grading and bridge work, is being done under contract by W. E. Lennane of Detroit, Mich.

Master Blacksmiths

Meet at Buffalo

APPROXIMATELY 260 members, guests and supplymen were registered at the thirty-first annual convention of the International Railroad Master Blacksmiths Association held at the Hotel Lafayette, Buffalo, N. Y., August 16, 17 and 18, 1927. The sessions, as heretofore, were devoted to the presentation and discussion of committee reports on the following subjects: autogenous welding; carbon and high speed steels; drop and machine forging; drawbars and drawbar pins; frame making and repairing; heat treatment of iron and steel; reclamation; spring making and repairing; tools and formers, and safety work.

On the opening day, in connection with the subject of autogenous welding, an interesting paper was presented by W. J. Wiggin, North Billerica, Mass., dealing entirely with the uses of the oxygraph torch shape-cutting machine. Several lantern slides were shown illustrating the many uses to which this machine has been adapted by the railroads. Cost and time figures were given on a number of typical railroad shop jobs showing that the savings in costs varied from 18 to 35 per cent through the use of this process. As an example of the time saving element, it was shown that on a certain locomotive frame section it was possible to produce in 3½ hours with the shape-cutting machine a front section which formerly required about three days of blacksmith forging work.

Mr. Wiggin's paper created considerable discussion, the greater part of which might be summed up as an expression of skepticism on the part of some of the older members of the association as to the use of the oxygraph on certain locomotive parts, particularly side and main rods and valve motion parts. The question was argued as to whether or not the extreme heat generated by the cutting torch has a detrimental effect on the physical structure of modern steels in that portion of the metal adjacent to the cut. Commenting particularly on side rods, several members who have had a great deal of experience with the oxygraph were

enthusiastic as to its future possibilities, but these men were in accord on the fact that the solution to the successful use of this machine depends on the proper preheating of the billets to approximately 1,250 deg. F. before cutting out and subsequent normalizing or annealing.

A representative of one road offered the information that in over one and one-half years' experience with rods cut out by this process not a single failure has been reported to date that might be attributed to the process. An important point was brought out when it was suggested that any road intending to use this machine on rods or motion work should call on the engineer of tests for definite specifications for material and heat treating processes.

Locomotive Frames and Drawbars

On the subject of drawbars there was considerable discussion as to the relative merits of handling billets for this work by hammering, rolling, or by the use of hydraulic presses. It was pointed out that in billets which are poured on end at the foundry a pipe or cavity in the center many times results. In working up such billets the hammering process produces a drawbar of much firmer grain structure, but will not eliminate the danger of failure due to hidden cavity. The rolling process many times only serves to elongate the cavity. Some roads have overcome this difficulty by using billets of sufficient length to make two drawbars, and when the billet is cut in two at the center the cavity can be discovered.

In connection with the repairing of locomotive frames, the discussion brought out the fact that some difference of opinion exists as to the advisability of removing frames and taking them to the blacksmith shop for the purpose of cutting out old autogenous welds and repairing with iron wedge welds. It was suggested that the recent introduction of cast steel frames with integral crossties would complicate matters and make frame removals an expensive operation. The opinion was offered that the proper application of thermit welding would obviate the necessity of removing frames and result in a better job on cast steel frames than could be made by iron welds in the smith shop.

In discussing the best treatment of steel particular stress was laid upon the importance of proper furnaces and temperature control equipment in order to handle the high grade alloy steel now being used in locomotive parts.

The election of officers will be reported in next week's issue of the *Railway Age*.

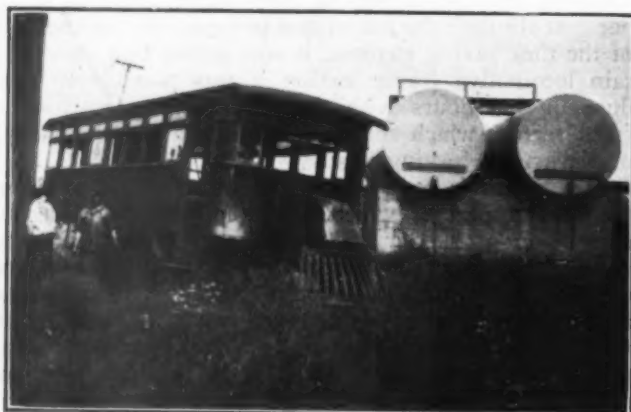


Photo C. P. Cushing

Rail Motor Car on the Ozark Southern

A. T. C. Installations on N. Y. C. and B. & A. Approved

WASHINGTON, D. C.

THE Interstate Commerce Commission, Division I, has issued reports approving the installation of the automatic train-stop (auto-manual) system of the General Railway Signal Company on portions of the Cleveland and Buffalo divisions and the Erie division of the New York Central, with two exceptions, and also approving without exception the installation of the same device on the Boston division of the Boston & Albany.

The installation on the New York Central extends from Buffalo, N. Y., to Cleveland, Ohio, 180.76 miles, and there are 362 locomotives equipped. In addition there are 37 locomotives of the Pennsylvania equipped with the Union Switch & Signal Company's intermittent inductive train-stop device operating over a portion of this territory.

The cost of the installation, as reported by the carrier, covering roadside and locomotive equipment, is as follows:

ROADWAY EQUIPMENT:	
Number of road miles equipped.....	180.8
Number of track miles equipped.....	704.1
Total cost of roadway equipment of train control installation, less power lines and power apparatus, if any, and less cost of signals or cost of change in existing signal system; less salvage	\$224,017.00
Total cost of power lines and power apparatus, if any, less salvage	None
Total cost of signal system installed in connection with train control; less salvage.....	None
Total cost of changes in existing signal system made necessary by train control; less salvage.....	51,824.00
Total all other roadway equipment costs, if any.....	None
Total cost roadway installation.....	\$275,841.00
LOCOMOTIVE EQUIPMENT:	
Number of locomotives equipped.....	375
Total cost of locomotive equipment installed.....	509,696.00
Total cost of installation.....	\$785,537.00

The exceptions are:

1. Locomotives operated backward in road service with the current of traffic should be equipped with the train-stop device for such movements.
2. The reset cocks on Pennsylvania Railroad locomotives operated on or over this installation must be so located or so designed and constructed that the apparatus cannot be reset while the locomotive is in motion.

The installation on the Boston & Albany extends from Springfield to Boston, Mass., 97.21 miles, and there are 117 locomotives equipped. The installation adjoins that portion of the Boston & Albany which was equipped under the commission's order issued on June 13, 1922.

The cost of this installation, as reported by the carrier, covering roadside and locomotive equipment, is as follows:

ROADWAY EQUIPMENT:	
Total cost of roadway equipment of train control installation, less power lines and power apparatus, if any, less cost of signals or cost of change in existing signal system; less salvage	\$107,588.01
Total cost of power lines and power apparatus, if any, less salvage	None
Total cost of signal system installed in connection with train control; less salvage.....	None
Total cost of change in existing signal system made necessary by train control; less salvage.....	None
Total cost of roadway installation.....	\$107,588.01
LOCOMOTIVE EQUIPMENT:	
Total cost locomotive equipment (121 locomotives) installed..	166,008.98
Total cost of installation.....	\$273,596.99

Cost Accounting and the Operating Expense Classification

Reasons for discussing "accounting for units" as distinguished from "accounting for the business"

By Charles E. Parks

Director, Department of Railway Accounting LaSalle Extension University, Chicago

THE factor of costs and cost accounting enters into every discussion of the classification of railway operating expenses. But before the relationship between costs and the classification can be studied it is necessary to know what is meant by costs and the purpose of cost accounting in the railroad industry.

A railroad company is in business to make a profit. To realize profits it produces and sells transportation service, the difference between the production costs and the selling price of the service representing the profits from the transactions. In this respect, a railroad operates under the same principle as any other manufacturing concern. A manufacturer buys raw material; he employs labor and furnishes the facilities to turn this raw material into finished products. In the same way, a railroad company buys material and supplies and rolling stock. It erects an expensive plant and employs labor to operate it, the result of this operation being the transportation service which is sold to shippers and the traveling public. This service is analogous to the finished product of the manufacturer.

Now, for administrative purposes, it is natural for a railroad company to want to know what it costs to furnish transportation service and the cost of the large number of individual items that enter into the production of this service. It will want to know, for example, what it costs to run a certain train, what it costs to operate a certain shop, and what it costs to give a certain kind of transportation service—dining car service, for example. It will also want to know the cost of performing certain units of operation and the manufacturing costs at its shops.

As railroad rates are regulated by governmental authorities, the cost features of railway operations are also of concern to the courts and commissions for regulatory purposes.

Definition of Cost Accounting. This demand for cost figures is supplied by cost accounting, which may be defined as the accounting procedure involved in determining the cost of any service or operation.

Cost accounting differs from general accounting in that the latter is intended to determine the profit and loss of the business as a whole, while the former brings out the cost of performing a specific operation, conducting a particular department, producing a manufactured unit, or giving a certain kind of transportation service. This cost figure when used in connection with the revenue received from any specific transportation service will determine the profit and loss from that service. Cost accounting, therefore, is "accounting for units" as distinguished from the purpose of general accounting of "accounting for the business."

Cost Groups

The cost figures which the railway accountant is called upon to furnish may be divided into four groups:

First: Costs of service.

Second: Costs of operations.

Third: Costs of manufacturing.

Fourth: Costs of facilities.

Costs of service represent the cost of furnishing the various kinds of services offered by a railway company. They include the cost of freight service (per ton-mile); cost of passenger service (per passenger-mile); cost of dining car service (per meal); cost of parlor car, sleeping car, express, baggage, mail, and the various kinds of transportation service offered. These cost figures are used largely to determine the adequacy of the rates.

Costs of operations are the costs of performing the innumerable processes which are commonly included in the term, railway operations. They include the cost of laying and relaying rail and ties, ballasting track, the cost of running trains, of handling freight, of switching cars, of repairing locomotives, of writing letters—any individual operation or combination of operations on which cost data is sought. Such cost figures are used for administrative purposes by the management and officers of the carriers.

Manufacturing costs are the costs incurred by a railroad in manufacturing parts, material, and equipment. The expenditures made for rebuilding cars and locomotives, for operating lumber treating plants, and for shop manufacturing processes come under this head.

Costs of facilities represent the cost of erecting and rebuilding the physical plant of the carriers, including tracks, bridges, buildings, signals, fences, terminals, etc. Such costs are used both for administrative and rate-making purposes.

In commercial or factory accounting this last group would not be considered in any system of cost accounting, but because of the huge investments in a railroad plant and the necessity for administrative control over the large annual expenditures, the costs of improvements, additions, and betterments, and construction work, are an important factor in the railroad business.

Results of Cost Accounting

The principal results of cost accounting are:

1. Control of expenditures.
2. A basis for standardizing costs.
3. Elimination of waste and inefficiency.
4. Comparisons between individual lines.
5. A basis of rates.
6. An aid in formulating policies and solving problems.

Control of Expenditures. Knowing what a specific job operation or service will cost before it is undertaken is a primary factor in controlling expenditures. For example, if a carrier finds it necessary to renew 100,000 ties annually and it knows the cost of renewing one tie or 100 ties, there can be no question as to the amount required to do this work. The amount will be known

just as definitely before the work is undertaken as the cost of the ties quoted by the producer.

Also, a knowledge of costs from day to day, or from period to period after they have been incurred will enable any railroad officer to control his future costs. On some roads a very close approximation of all transportation costs for the preceding day is known by the general manager on the following day. This enables him to keep a close check of his operating costs and order the necessary revisions of practice or force to be made before unfavorable conditions develop.

Cost Standards. Cost accounting will gradually set up cost standards. While these standards will fluctuate with the fluctuation in the value of the dollar and with changing economic conditions, such as the introduction of labor saving machinery and improved methods, yet for purposes of comparison within a specific period, standardized cost figures may be accepted and used. Deflection from such standard will be the first indication of results achieved or of remedies required.

Indicators of Waste and Inefficiencies. Unit costs are the best indicators of waste and inefficiency. Conversely, they are the best indicators of operating efficiency. If an agent at one terminal handles freight at a cost of one dollar a ton and another agent operating under similar conditions handles freight at 50 cents a ton, and if these figures are arrived at by the same formula and include the same cost factors, the relative efficiency of the two station forces can be readily gaged. Similarly, if one section gang can renew ties in rock ballast at one-third the cost of another, or one shop turn out a job at one-half the cost of doing the same work at another shop, there can be no question of where the waste is located.

Comparison between Carriers. Uniform cost accounting also permits statistics to be prepared which will enable one road to make an intelligent comparison of its operations and service with those of another. The importance of this advantage of cost accounting and the present situation with respect to a certain phase of railroad operation was vividly painted in an address at the San Francisco meeting of the Railway Accounting Officers Association by William Sproule, president of the Southern Pacific Company. He said:

"There is a great deal yet to be done (in cost accounting). I have in mind an experience in which I asked for a comparative statement showing the costs of the dining car systems of the railroads of this country. I asked that the principal railroads be compared for my information. Gentlemen, it proves to be impossible to make a comparison of the dining car service costs of this country, because there is no uniformity of method in keeping those accounts. There is a veneer of uniformity, but when you get down to analyze it you will discover that every railroad has its own factors, its own theories of keeping this out and putting that in. It has its own theories of accounting expediency, not looking always for the fact, for the truth, but looking for the kind of truth and the kind of fact that will fit somebody who has a theory as to how the accounting as applied to that service should be done. There should be among the railroads of this country such a plan of uniformity as will make possible the determination of the cost factors that enter into the finding of the truth. There is not one in this room who cares much about the statement presented to him, which purports to tell him a certain thing, unless he knows what are the factors taken into account in reaching that final result."

As a Basis of Rates. While specific rates have seldom been determined upon the basis of cost of the service alone, yet this is an important and growing factor in rate making and is always injected into any rate hearing. It is logical for the carrier and the commissions to want to know what classes of traffic create the largest profits and what classes are carried at a loss.

From a purely technical accounting standpoint, no railroad has ever prepared an accurate cost statement re-

flecting the cost of any service or operation. Yet statements have been presented as cost statements and have been accepted by the Interstate Commerce Commission and other regulative bodies as such. In other instances, they have been disregarded. In commenting upon such cost figures, Interstate Commerce Commissioner Joseph B. Eastman has said:

"It was brought forcibly to my own attention in the Perishable Freight Investigation, where an attempt was made by the carriers to base rates on actual cost, and the evidence disclosed the utterly insecure foundation for such an attempt in present methods of accounting."

Formulating Policies. As an aid in formulating policies of management and solving the problems that arise from time to time cost figures are indispensable. In fact, without them decisions are based merely on guesswork and partake of the form of gambling.

Instances of the use of such figures are legion; but the following case is important in that it shows not only the necessity for them, but also the importance of considering every factor of costs:

A proposal was made to a carrier to convert an electric traction route into a bus line. The accounting department prepared a cost statement, making a comparison of the costs of installing and operating the electric line and the bus line. The reaction of the president of the road to this statement brings out the point in question. He said:

"I looked down the calculations to find that apparently there would be a distinct saving by making the change, abandoning and salvaging the lines, to put into use the automobiles. However, I found that when the automobile was bought and put into service it would run forever apparently; it was assumed (from anything on the page), that the money to pay for it could be had simply for the asking, as if there were no other use for it, consequently it would draw no interest. And as for insurance? Why, automobiles neither blow up nor burn, so why insure? Thus the deductions were wrong just because of those simple omissions of depreciation, interest, and insurance. I returned it with the suggestion that when attention had not been devoted to those important items, it probably would be well to begin at the beginning with all the other calculations."

Elements of Cost in Railway Operations

To determine the cost of any service, operation, manufactured product or facility, three principal elements must be considered. These are direct material, direct labor, and indirect costs. These groups include every expenditure necessary to turn out the finished product—transportation.

Direct Material Cost. Direct material charges are the cost of material actually used in any operation or job, also the incidental charges such as freight charges, involved in getting the material ready for use. Such costs are represented by the cost of the lumber actually used in rebuilding a freight car.

Direct Labor Costs. Direct labor charges are the cost of labor directly assignable to the operation or job. The pay of carpenters for their time actually spent in rebuilding a car is an example of a direct labor charge.

The test for both direct labor and material costs is whether the material is used or the labor is consumed in the actual operation or production process.

Indirect Costs. If such costs are not directly assignable to the job, they come under the head of indirect costs. Indirect costs are all items of expense which cannot be assigned directly to the job, operation, or service. Shop and store expense are good illustrations of indirect cost in cost accounting for manufactured products, as are also light and heat, power, water, and repairs to machinery. Supervision, general administration, taxes, rent, insurance, and depreciation are other cost items that are not directly assignable. However, in true cost accounting provision must be made for including the

proper proportion of such expenditures in every cost figure.

Economists and accountants differ as to what items should be included in the cost figures of the various industries. But a sane rule would seem to be to let the purpose or use to which the cost figures are to be put decide this question.

If used to gage the efficiency of a gang, shop, or office force, only the direct labor costs should be included. If used to control the total cost of a department or of a production process only those expenditures for labor and material over which the supervising officer has control should be considered. On the other hand, if the cost of performing a particular class of service is to be used as a factor in determining the rates and the returns from that service, that is, in fixing the selling price, every possible cost factor, including rents, taxes, insurance, and interest should be considered.

Primary and Total Costs. However, it is evident that there are two cost figures that may be arrived at. Primary Costs and Total Costs. These may be represented by the following formulas:

Primary Costs = Direct Material plus Direct Labor.
Total Costs = Primary Costs plus Indirect Expense.

Each of these cost figures have their uses in railway administration and regulation. In some cases, a carrier uses only direct costs to gage its operations; in other cases, a certain portion of the indirect costs is apportioned according to a prescribed formula. In few cases are the totals of all the indirect costs consumed in any particular operation or service apportioned.

An example of the use of direct labor costs in ascertaining operating efficiency is when the work of section gangs of a district is measured in terms of the cost of inserting ties, changing rail, inserting ballast, etc. Here only the direct labor charges for each class of work is taken into consideration. To consider any indirect charge, other than the pay of the section foreman supervising the work, would defeat the purpose of the cost study.

The same situation applies in determining manufacturing costs at a railroad shop. For most administrative purposes it is not necessary to include every item of indirect costs, and only such items as "shop expense" that are closely related to the manufacturing process need be apportioned to the job, because they are the only factors controlled by the mechanical officer in charge of the work.

However, under certain conditions, depending upon the purpose for which the cost figures are used, it may be necessary to include every item of indirect cost. For example, if a railroad wished to compare its cost of building a unit of equipment with similar costs of outside manufacturers in building similar units, it should include every item of cost in its cost figures that the manufacturer does, otherwise the comparisons would be of little value. If a railroad eliminates its overhead and depreciation expenses from such cost figures and these are included by a manufacturer, the comparison is erroneous.

In a subsequent article, it will be brought out how the operating expense classification meets the requirements of cost accounting.

IN A CAMPAIGN TO ABOLISH OFFENSIVE ADVERTISING SIGNS recently instituted at a number of places on Long Island the Long Island Railroad co-operated by ordering the removal of all advertising signs from its stations at Inwood, Lawrence, Cedarhurst, Woodmere and Hewlett.

Stationery Costs Reduced On the M-K-T

A REDUCTION of \$13,000 a year in stationery expenses has been made on the Missouri-Kansas-Texas as one result of a campaign against waste in the handling and use of materials. Activities in this direction were begun in May, 1925, by the establishment on a permanent basis of a system "conservation" organization, comprising a general committee of executive officers and four sub-committees—one each for roadway, car department, locomotive, and train and station service materials. The campaign was launched by setting aside November 12, 1925, as a "conservation" day when every employee was asked in a circular distributed in advance to give at least one suggestion on preventing waste of materials. The stationery committee received about 700 suggestions, many of which were adopted. A large portion of the reduction in stationery expenses is the result of revising 436 forms.

On the M-K-T cardboard filing boxes are being gradually replaced by metal file boxes. In 1923, 1924 and 1925 a total of 9,996 metal boxes were purchased, or an average of 3,332 per year. In 1926, as a result of appealing to all officers to remove obsolete files and return metal boxes to active service, the expenditure for metal boxes was reduced to \$1,140, reflecting a saving of \$1,118 in purchases of this equipment.

More extensive use of paper was advocated and also its reclamation. The results of this campaign are reflected in the figures of the store department which show that whereas in 1925 a total of 13,932,000 sheets of paper were used, costing \$6,185, only 7,478,000 sheets of paper costing \$3,495 were issued in 1926 or about half the quantity used in 1925. The 1927 figures will exceed those for 1926 by about \$1,100 but this is because the supply of reclaimed paper is no longer as plentiful as it was. The reclaimed paper is used principally for office files, reading files, memoranda and for inter-office correspondence, while the greatest decreases in paper consumption have been in message paper, second sheets and white writing paper.

The consumption of envelopes was materially curtailed, first by putting into use two sizes of a non-sealed envelope, the face of which is blocked off for 8 and 12 addresses and second by promoting the repeated use of sealed envelopes. The practice of sealing envelopes was discouraged and persons finding it necessary to use sealed envelopes in inter-departmental correspondence were requested to write the address in small lettering so that the same envelope could be used again by simply obliterating the old address. The campaign has decreased the consumption of envelopes in 1926 by 2,037,000 under that in 1925, reflecting a saving of \$1,825, the reduction in sealed envelopes being 800,000.

The committee also investigated postage expense and in the furtherance of economy extended the system of applying postage of outgoing mail in one office instead of at all offices.

In 1925 and 1926 an income of \$3,438 was derived from scrap paper sold from the Parsons, Kan., store and it is estimated that an equal amount was derived from sales at other points where local pick-up arrangements were in effect.

Many other schemes for economy have been developed by the stationery committee, such as the curtailment in the distribution of tariffs, decreasing the consumption of pencils by having employees use the re-

fillable type, the use of old mechanical time service cards as car cards, the re-use of bulletin books and binders, putting stations on a less frequent reporting basis, keeping down stationery stocks by a more careful preparation of requisitions, and the care of supplies on hand and the elimination of instructions on printed forms, etc.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading for the week ended August 6 amounted to 1,024,218 cars, a decrease of 51,174 cars as compared with the corresponding week of last year and 28,300 cars under the corresponding week in 1925. The loadings of all commodities were smaller than in the corresponding week of 1926, with the exception of less-than-carload merchandise. Loadings in all districts, except the Pocahontas, showed a decrease as compared with a year ago. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

WEEK ENDED SATURDAY, AUGUST 6, 1927

Districts	1927	1926	1925
Eastern	235,115	246,090	247,510
Allegheny	206,265	218,853	213,547
Pocahontas	59,945	57,909	56,803
Southern	146,897	149,128	146,080
Northwestern	158,993	166,167	157,628
Central Western	143,340	158,087	152,918
Southwestern	73,663	79,158	78,032
Total Western districts.....	375,996	403,412	388,578
Total all roads.....	1,024,218	1,075,392	1,052,518
Commodities			
Grain and grain products.....	51,720	58,811	53,562
Live stock	25,180	25,512	28,786
Coal	156,651	182,690	189,989
Coke	9,548	11,486	9,581
Forest products	67,661	69,720	71,502
Ore	62,053	75,561	62,798
Mdse. L. C. L.....	266,749	258,551	258,754
Miscellaneous	384,656	393,061	377,546
August 6	1,024,218	1,075,392	1,052,518
July 30	1,045,621	1,095,997	1,045,626
July 23	1,012,424	1,078,193	1,033,519
July 16	1,016,782	1,076,372	1,012,854
July 9	839,308	897,556	986,893
Cumulative total, 52 weeks.....	31,286,341	31,298,302	30,326,099

The freight car surplus for the week ended July 31 averaged 273,275 cars, a decrease of 18,112 cars as compared with the preceding week. This surplus included 154,437 box cars, 76,554 coal cars, 20,845 stock cars and 14,957 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended August 6 totaled 60,111 cars, a decrease from the previous week of 2,219 cars, but an increase of 3,294 cars over the same week last year.

Commodities	Total for Canada			Cumulative Totals to Date	
	Aug. 6, 1927	July 30, 1927	Aug. 7, 1926	1927	1926
Grain and Grain Products..	3,535	4,183	3,681	213,006	203,985
Live Stock	2,152	2,284	2,195	60,303	61,933
Coal	7,386	7,223	6,602	199,101	157,015
Coke	268	254	250	9,685	11,572
Lumber	4,491	4,384	4,062	115,542	113,064
Pulpwood	2,119	2,268	2,246	111,387	91,483
Pulp and Paper.....	2,232	2,198	2,150	69,357	76,654
Other Forest Products.....	2,728	2,595	2,259	95,836	99,825
Ore	1,544	1,822	1,813	48,374	50,243
Merchandise, l. e. l.....	17,196	17,934	16,444	523,321	495,262
Miscellaneous	16,460	17,185	15,115	433,284	421,300
Total Cars Loaded.....	60,111	62,330	56,817	1,879,196	1,782,336
Total Cars Received from					
Connections	34,404	35,996	35,742	1,176,646	1,152,836

Notable Performance of Frisco Locomotives

IN the latter part of June, the St. Louis-San Francisco inaugurated long main line passenger locomotive runs of 735 miles, the Kansas City Florida Special trains being hauled by heavy Mountain type locomotives between Kansas City, Mo., and Birmingham, Ala., without engine change. On August 4, a Frisco Mikado type coal-burning locomotive No. 4100 made a notable performance in completing two round-trips in regular freight service between Kansas City and Birmingham, or a total of 2,940 miles with the same fire. During this run, which was begun on July 25, the locomotive consumed 491,500 gal. of water and 281 tons of coal, handling a total of 5,533,121 gross ton-miles of business at an average rate of 101.6 lb. of coal per 1,000 gross ton-miles.

No special attention was given Locomotive 4100, already credited with a total of 32,000 miles since the last shopping, before its 2,940-mile run was made, and no special crews were used. At no time was there any indication of mechanical difficulty or foaming and when the washout plugs were removed at Kansas City upon completion of the run there was no sign of mud in the leg of the boiler. An average of only 12 minutes was consumed at each intermediate terminal in shaking the fire and cleaning the ash pan. Alabama mine run coal was used on the trips with the exception of Oklahoma coal on two sub-divisions. No special allowance of oil was used and the lubrication of the engine was satisfactory.

Locomotive 4100 is of the heavy Mikado type with tender capacity for 20 tons of coal and 11,700 gal. of water. It is equipped with syphons, brick arch, table grates with 35 per cent opening and 70.3 sq. ft. of grate area. It is equipped with a modern stoker and booster.

In making this run the engine was blown out a total of 196 minutes, an average of 8.12 minutes on each sub-division. The engine was under fire continuously from 3 p. m. July 25, until 1 a. m. August 4, a total of 217 hours. After the completion of each 735 miles between Kansas City and Birmingham the fire was banked. At Birmingham 90 scoops of coal were used from 7.15 a. m. July 27, until 4 a. m. July 28, a total of 1,350 lb.

On arrival at Kansas City at 4.30 a. m. July 30, on completion of the first round trip, the fire was also banked, using 870 lb. until 6 a. m. that morning. On arrival at Birmingham at 9.35 a. m. August 1, after return to that city on the first-leg of the second round trip, the fire was banked with 71 scoops of coal, or 1,065 lb., until 4 a. m. August 2. A total of 3,258 lb. of coal was used in banking the fires at Birmingham and Kansas City.

Examination of the engine upon its return to Kansas City on August 4 showed the machinery to be in excellent condition. The fire was knocked and the following boiler conditions were found: Seven small and two large flues were stopped up on the left side; four small and two large flues were stopped up on the right side; there was two inches of dirt on top of the arch; two bushels of dust and honeycomb had accumulated in the combustion chamber; the grates were in good condition; there were four scoops of ashes in the front end. This engine operated over six sub-divisions where the grade is from level to 1.67 per cent. The average speed maintained by the engine during the run was 19.3 miles per hour.

Coast Lines Add Ferry Boats At San Francisco

Northwestern Pacific entertains visitors from cities along its lines at launchings

By William S. Wollner

General Safety, Fire Prevention and Welfare Agent,
Northwestern Pacific

DURING the last fiscal year, 57,775,456 passengers and 2,269,937 vehicles were transferred across San Francisco Bay in ferries operated by five railroads and one non-rail carrier. This volume of traffic is due to the location of San Francisco on the end of a peninsula which is served direct by only one rail line, the Southern Pacific's Coast division. The same condition necessitates the transporting on car ferries and barges of a tremendous quantity of freight entering and leaving the San Francisco Bay district.

The Southern Pacific Company alone operates seven passenger-carrying steamers, eight automobile-carrying steamers, two composite steamers, and three freight and passenger car transfer steamers, as well as a fireboat that is used exclusively to protect the company's wharves and steamers. The other railroads operating ferry service are the Santa Fe, the Western Pacific, the Key System and the Northwestern Pacific.

New Boats Provide Additional Service

The rapidly increasing traffic has necessitated the providing of new ferries and at the present time 12 are either under construction or recently put in service. Two of these are steam turbine electric-driven crafts for the Key System, while six others are Diesel electric-driven built from the same plans and specifications, three for the Southern Pacific and three for the Northwestern Pacific. These six will each be equipped with four 450-hp. Nelseco engines, while two for each company will carry General Electric equipment, the third being Westinghouse equipped.

These vessels have steel hulls and superstructures, are 256 ft. long, 66 ft. wide and will have a capacity of 95 automobiles on the main deck. On the upper deck are commodious women's and men's salons, a smoking room and a dining room and galley, completely electrically-equipped.

The entire control of the boat is in the pilot house so that the captain not only steers it but regulates its speed as well through a pedestal type controller. This is in marked contrast to the older system used on steamers whereby the pilot, through an engine room control signal system, indicates to the chief engineer the speeds desired, after which the engineer carries out the order, signaling back from the engine room control to the pilot house that the order has been obeyed. Under the new system the pilot will actually operate the propelling motor. This equipment has been constructed to withstand a shock such as the moving of the control handle



Launching the Ferry Boat "Mendocino"

from full speed ahead to full speed astern, the propeller following closely the movement of the controller.

The power plant of the boats will consist of four Diesel engines, each of which will be connected to a generator and an exciter. The generators will be connected in series, supplying power to two main propelling motors which will be of 1250 shaft horsepower—one located in each end of the boat, directly connected to the propeller shaft. Exciters will furnish auxiliary power for operating pumps, lights, electrical restaurant appliances and the control system.

Pacific coast railroads have taken the launching of the new ferry boats as occasions for improving their public relations in the territories which they serve. The Southern Pacific named its vessels "Stockton," "Fresno" and "Tahoe," the first two representing important cities in its territory, while the third is named for the mountain lake region that the road is featuring as part of its overland route. The Northwestern Pacific named its boats "Santa Rosa," "Mendocino" and "Redwood Empire." The first is the name of an important competitive city on its line, the second is one of the counties it serves and the third represents a district made up of seven northwestern California counties and one southwestern Oregon county which depend very largely on this road for their transportation.

Launchings Made Occasion for Celebrations

The naming of the boats for communities provided good advertising for these cities and sections and was the means of arousing local pride. The railroads made the residents of these places their guests at the launching of the vessels and at the trial trips. Special trains with reduced rates of fare were run for these occasions and the guests were entertained by the railroads upon their arrival at San Francisco, where the boats were constructed on San Francisco Bay.

The ceremonies in connection with the christening of the Northwestern Pacific's "Mendocino" were typical of the other launchings. The county for which this vessel is named is the home of several Indian tribes and boasts an important government Indian reservation and

an Indian school. The Mendocino region contains a number of large cattle ranches, retaining much of the old wild west atmosphere, and for this reason this launching was given a distinct western setting.

Indian Princess Sponsor for the Christening

Princess Merinetti Lake of the Yokayo tribe of Indians, was selected as the sponsor for the christening, and two of her tribal sisters, a squaw and several Indian chiefs were assigned to assist her. A special train left Willits, 140 miles north of San Francisco, at 4:45 A.M., stopping en route at other towns in Mendocino county to pick up those who wished to participate in the launching. Despite the early hour, 264 guests were aboard this train. Upon arrival at Sausalito on San Francisco Bay, these guests were taken aboard the Northwestern Pacific's ferry steamer "Tamalpais." In the 35 minutes that intervened on the trip between Sausalito and San Francisco, the guests were furnished breakfast—an unusual task considering that the restaurant would seat but 72 at one time.

Vessel Presented

The "Tamalpais," with more than 500 people aboard, went directly to the Bethlehem Shipbuilding Company's plant and, upon landing there, the guests proceeded in parade formation to the point of the launching. Leading the procession was the boys' and girls' band of the Willits High School, and following were the Indians, cowboys and cowgirls and the other guests.

As the last block was knocked from under the cradle in which the "Mendocino" rested and the ferry slipped down the ways the Indian princess crashed a bottle of champagne against the vessel's sternpost. The president of the Bethlehem Shipbuilding Corporation presented the vessel to Warren S. Palmer, president of the Northwestern Pacific, who in turn dedicated it to the service of Mendocino county. Mayor Anderson of Ukiah spoke on behalf of the county. The audience then returned to the "Tamalpais," upon which luncheon was served while the vessel steamed about San Francisco Bay.

Careful Preparation Necessary

It was stated by persons who had attended a number of launchings on San Francisco Bay, that the Northwestern Pacific's function stood out for the manner in which the exercises were conducted and for the feeling of hospitality which was communicated to the guests by the company. One of the company's officers was placed in charge of the launchings and in each case he visited the communities involved, arranging the details of the affair.

The persons most interested, particularly those responsible for participation, were interviewed and informed of the arrangements. In addition, a reception committee was formed, consisting of the officers of the railroad company. These men were instructed as to what was expected of them and this, more than any other thing, accounted for the smoothness with which the occasion was carried through. Some of the committee members accompanied the special trains while others were present at the Sausalito terminal and at San Francisco to welcome the guests. Praise in the local newspapers, from community organizations and individuals during the weeks following the launchings proved that the railroad's efforts to make these affairs outstanding successes was more than warranted by the return in good will.

Settle Livestock Claims By Correspondence*

THE most economical way of handling livestock claims is by correspondence rather than by personal contact, according to the experience of the Chicago, Rock Island & Pacific which, since 1923, has handled this type of claim by the former method. The average price paid in settlements for the period of 1923 to 1927 as compared with those settled from 1916 to 1923, has decreased \$10.15 per head for horses and mules, \$13.77 per head for cattle and \$1.88 per head for hogs. The number of heads paid for per year has decreased from 2,143 in 1920 to 1,116 in 1926. During the four years in which stock claims were handled by correspondence, 5,390 claims were handled and of these only 30 resulted in suits against the railroad and most of these were settled before the case was called for trial.

Personal Contact Took Time

The handling of stock claims by personal contact prior to the last four years, required the time of three adjusters and the overhead chargeable to each stock claim settled, including salary and other expenses, amounted to approximately \$6 per head. The cost since the adoption of correspondence has averaged eight cents for stamps.

The psychology used by every claim agent when claims are handled by personal contact deserves consideration.

Every claim man knows that just any time is not propitious for the business of approaching a claimant for a settlement. For instance, it is generally conceded that approaching a man for a settlement when he is surrounded by a crowd of his neighbors to whom he has just finished boasting about what he is going to make the railroad pay is not the most opportune time to talk to him. A settlement of a stock claim by correspondence obviates any possibility of a claimant being interviewed under any circumstances. During the past four years, out of every 50 propositions or offers of settlement mailed out, 25 came back properly signed and accepted.

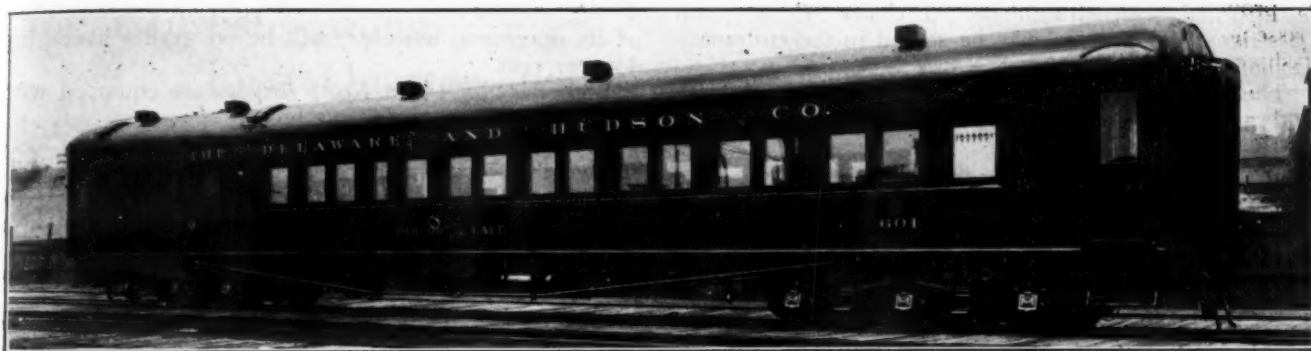
The balance were returned but with letters making explanations and demanding more money, and were often accompanied by affidavits or appraisals made by several of the claimant's neighbors.

Basis of Settlement

The first set of propositions or offers of settlement were made on the best judgment of what a fair settlement would be, based on the section foreman's estimate, coupled with the description of the animal which gives breed, weight, age, etc. The section foreman is 99 times out of 100 a very conscientious and loyal employee and his estimate is not usually too high. The disposition of the 25 propositions or offers not accepted involved only the raising of these offers to a higher figure which resulted in about 20 of them being signed and accepted. The balance were allowed to rest until further investigation was made by mail to determine the value and details of the accident.

A third proposition marked "Last offer" brought in more acceptances.

* Abstract of an address made by L. C. Reed, inspector and adjuster in the general claim department of the Chicago, Rock Island & Pacific, before a meeting of the Texas Claim Agents' Association at Dallas, Texas, on July 8.



Parlor-Cafe Car Remodeled by the Delaware & Hudson

D. & H. Remodels Parlor-Cafe Car

*Divided into smoking and non-smoking compartments
and dining room for coach passengers—*

Total seating capacity is 26

THE Delaware & Hudson recently remodeled and placed in service a parlor-cafe car in which a number of innovations for this class of service have been incorporated. The car has length over the end sills of 70 ft., and is divided into three compartments, namely a smoking compartment, non-smoking compartment and dining room. As shown in the floor plan of the car, the smoking compartment is the largest of the three compartments, occupying 24 ft. of the length and having seats for 12 persons. The non-smoking compartment is located in the center of the car and has seats for six persons. The dining room is located next to the non-smoking compartment. The pantry and kitchen are considerably larger than are ordinarily used in parlor-cafe car service, sufficient cooking facilities being provided to serve meals to coach passengers in the dining room, which has a seating capacity for eight persons, as well as to the parlor car patrons. Both parlor compartments are furnished with movable chairs and tables are provided for the serving of meals.

Luggage Rack Near Vestibule

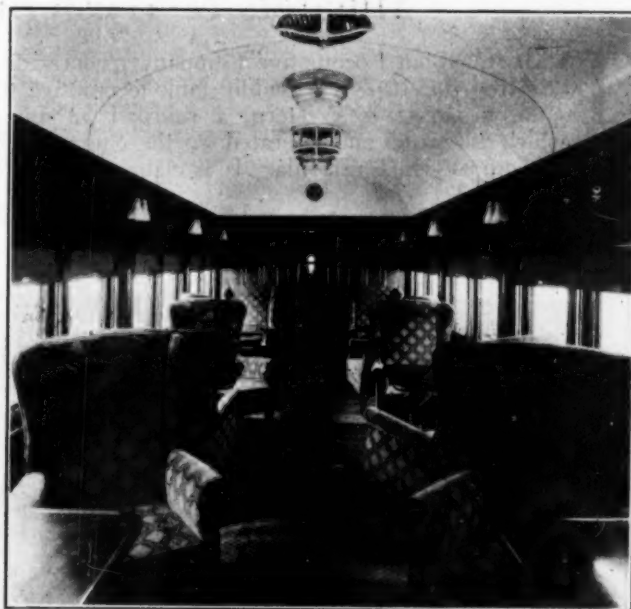
The vestibule at the smoking compartment end of the car is provided with steps on both sides for the entrance and exit of passengers at station stops. A large luggage rack for the convenience of the passengers is located immediately inside the door. The vestibule at the kitchen end of the car is provided with only one pair of steps, the step space on the opposite side being occupied by a linen locker and a switch locker for the car lighting equipment.

The interior of the car is finished in black walnut with white enamel bulkheads and headlining. The electric lighting fixtures and hardware are of satin silver finish, in harmony with the interior color scheme. The car is equipped with 11 double and eight single wall lamps and six specially designed combination ventilator center lamps. Four fans with rotating deflectors, spaced in relation to the size of the compartments, are suspended from the ceiling.

The ventilating system is a special feature designed by the mechanical department of the Delaware & Hud-

son. Air ducts are laid between the roof and the ceiling which connect with the ventilator registers on the center lamps, through which adequate ventilation is secured. The exhaust ventilators are the Mudge-Peerless type designed for arch type roofs. A Pullman style slide ventilator is placed at the bottom of each window sash. The atmosphere in the smoking compartment is kept clear by means of an exhaust blower.

The floor is covered throughout with carpet under



Interior of the Smoking Compartment

which Ozite, a felt designed to deaden sounds, is laid. The furnishings of the two parlor compartments are identical, both compartments being provided with comfortable high backed chairs upholstered in frieze plush which may be moved at the occupant's pleasure. The smaller parlor compartment has accommodations for six persons and is intended for the use of passengers who do not wish to smoke. The dining compartment

is provided with straight-backed chairs where coach passengers in the train may be served in the customary fashion.

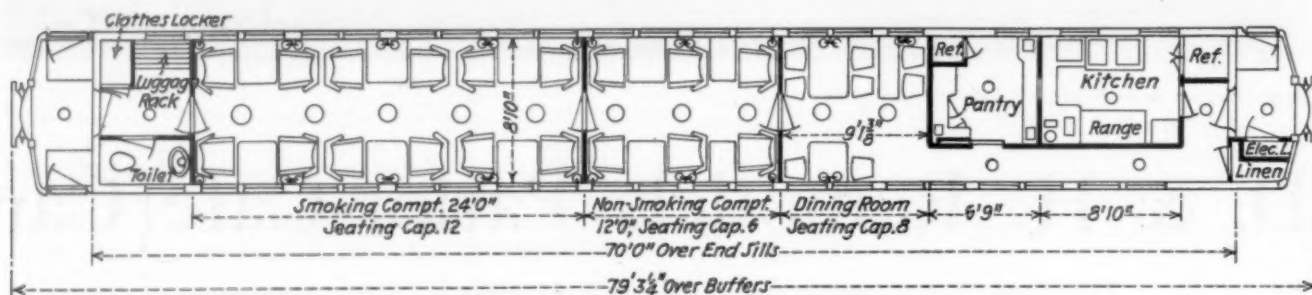
The kitchen and pantry are finished in French gray and are fully equipped with modern facilities. The work tables, etc., are covered with Monel metal. The lavatory is equipped with a flush hopper and a white enamel pedestal washstand.

In remodeling this car the roof, which was originally of the clere-story deck type, was replaced with an

28-deg. curves and from 7 to 8 per cent grades. Most of its operation, however, will be on grades averaging $4\frac{1}{2}$ per cent.

Both the No. 1 and No. 5 drivers are equipped with Alco lateral motion driving boxes.

Previous to the procurement of the 2-10-2 type locomotive the work was performed by a 2-8-2 type saddle tank locomotive having a tractive force of 35,200 lb. The 2-8-2 type was built by the American Locomotive Company in the early part of 1923.



Floor Plan of the D. & H. Parlor-Cafe Car

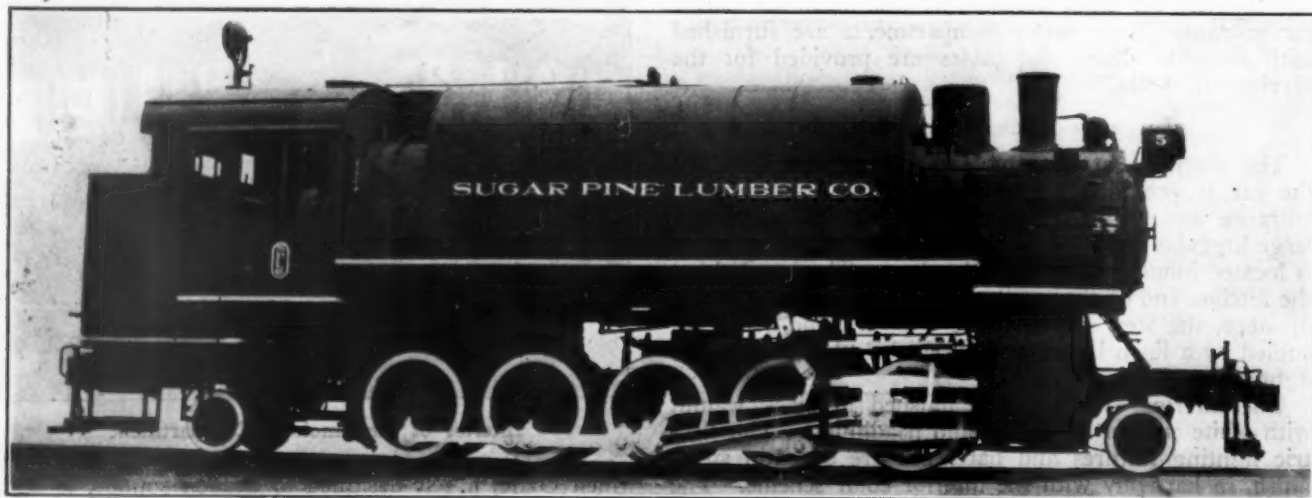
arch-back so as to conform in exterior appearance with the prevailing type of passenger cars used on the Delaware & Hudson. The car has a Commonwealth steel underframe and six-wheel trucks equipped with clasp brakes. It weighs 153,600 lbs. The work of remodeling was performed at the car shops of the company at Oneonta, N. Y.

2-10-2 Locomotive for the Minarets & Western

THE American Locomotive Company recently delivered a 2-10-2 type saddle tank locomotive to the Minarets & Western, a railroad 53 miles long, which is owned and operated by the Sugar Pine Lumber Company in California. It is claimed that this

The operation of the Minarets & Western requires that the locomotive be run forward up-grade and backward down-grade. A revolving searchlight, so arranged that it can be manipulated by the engineman as desired, is located on the roof of the cab. The locomotive is equipped with a number of economy devices such as the Type A superheater, Chambers dome type throttle, Ashton back pressure gage and Type E power reverse gear. It is also equipped with a rail washer which discharges water at the rear of the trailing truck wheel and against the tire flange. Two $8\frac{1}{2}$ -in. cross-compound air compressors are installed on account of the excess air capacity required when operating down the steep grades. The oil-burning arrangement is the Heintzelman system equipped with a Von Boden-Ingles oil burner.

The locomotive has cylinders 22 in. in diameter by 28 in. stroke and 48-in. drivers. With a boiler pressure of 220 lb., it develops a total tractive force of 52,800 lb.



Saddle Tank 2-10-2 Type Locomotive Built for the Minarets & Western by the American Locomotive Company

locomotive is the first 2-10-2 type to be built with a saddle tank and for that reason the owners have designated it as the "Minarets" type. The locomotive is to be used in logging service and is designed to negotiate

There are 3,003 sq. ft. of combined heating surface and the firebox has a grate area of 33.5 sq. ft. The total weight of the locomotive is 267,500 lb., of which 213,000 lb. are on the drivers.

Accident Investigations, First Quarter, 1927

THE Interstate Commerce Commission has issued bulletin No. 31 containing its summary of train-accident investigations for the three months ending with March 31, 1927; six collisions and six derailments. Following is a list of the cases investigated, the numbers at the left being those of the government record.

ACCIDENTS INVESTIGATION, JANUARY, FEBRUARY, MARCH

1320	So. Pacific and P. T. R. R. Assn.	Houston, Tex.	Jan. 7	C
1321	New York Central	Savannah, N. Y.	Jan. 9	C
1322	Missouri Pacific	New Haven, Mo.	Jan. 13	C
1323	Southern	Lindale, Ga.	Jan. 14	D
1324	New York Central	Harmon, N. Y.	Jan. 22	C
1325	Chicago & Alton	Larrabee, Mo.	Jan. 23	C
1326	Toledo, Peoria & Western	Smithfield, Mo.	Jan. 25	D
1327	Southern	Heiskell, Tenn.	Feb. 8	D
1328	Atchison, Topeka & Santa Fe	Flores, Ariz.	Feb. 13	D
1329	Union Pacific	Clayton, Cal.	Feb. 15	D
1330	Buffalo, R. & Pittsburgh	Salamanca, N. Y.	Feb. 21	D
1331	Georgia Southern & Florida	Chula, Ga.	Mar. 14	C

The January investigations were abstracted in the *Railway Age* of June 11, page 1785.* Following are notes of the four derailments and one collision reported in the remaining two months of the quarter.

Poor Judgment in Brake Handling

Southern, Heiskell, Tenn., February 8.—Eastbound freight train No. 80, consisting of locomotive No. 840 and 31 cars, moving at low speed on a steep descending grade, ran off the track where rails had been taken out by the trackmen, and the locomotive was overturned. The engineman was killed. The train had been flagged and had stopped about one-half mile back. The engineman apparently understood clearly the instructions from the flagman, but seems to have exercised poor judgment in the management of the brakes. Six cars had been taken on at a point 36 miles back and 14 cars at a point 18 miles back and the inspector cannot find out whether the brakes on all these cars were in proper order.

Atchison, Topeka & Santa Fe, Flores, Ariz., February 13, 10:15 p.m.—Southbound passenger train No. 49, moving at about 40 miles an hour, was derailed by the pilot of the locomotive which had become loosened, and the locomotive was overturned. The engineman and fireman were killed and three passengers were injured. The pilot had been weakened by striking a rock about 12 miles north of the point of derailment, the rock having fallen from a bank where trouble of this kind had never been encountered before. The engineman had examined the pilot but had concluded that it was still in safe condition. An assistant superintendent and an assistant master mechanic were on the train and joined in the examination of the cars and locomotive after the engineman had stopped because of the damage to the locomotive by the rock. The report mentions the fact that these two officers were informed as to what had happened and realized the possibility of danger but had failed to ascertain that there was no further danger.

Improper Care of Abutment

Union Pacific, Clayton, Cal., Feb. 15.—Eastbound passenger train No. 8, moving at about 35 to 40 miles an hour, fell into San Jose Creek, $\frac{1}{4}$ -mile west of Clayton station, because of the failure of the west abutment of the bridge; and the engineman was killed; nine passengers and 12 employees were injured. This derailment was reported in the *Railway Age* of May 7, page 1402.

* For preceding months see *Railway Age*, April 2, page 1062; April 23, page 1251.

The government inspectors concluded that the abutment which failed had not been adequately cared for.

Buffalo, Rochester & Pittsburgh, Salamanca, N. Y., February 21, 4:16 p.m.—Passenger train No. 209, from Buffalo, was derailed at a facing point switch while moving at about 25 miles an hour and the locomotive, after striking some freight cars, was overturned. The engineman was killed and one other employee was injured. The switch, which was partly open, had a large white target, but the fireman, although he says that he was looking ahead (the line being straight) did not see either the target or the switch points. It turned out that a boy six years old had tampered with the switch, getting the lever partly open and then finding himself unable to replace it. There was nothing to indicate that there was any malicious intent in his action. The switchman who had last used the switch had closed it but his assertion that he had locked it was not supported.

Misplaced Switch

Georgia Southern & Florida, Chula, Ga., March 14, 6:50 p.m.—Southbound passenger train No. 5, one locomotive and nine cars, moving at about 40 miles an hour, ran over a misplaced switch and collided with freight cars standing on a side track. The locomotive was overturned; engineman killed and three passengers and one employee injured. The switch had been left misplaced by a track repair gang, a few minutes before the accident, and the section foreman is held responsible. The foreman and a number of his men made numerous statements which afterwards they retracted, the substance of the conclusion of the inspector being that the foreman habitually allowed one of his men to keep his (the foreman's) switch key; that this man gave the key to another; that the switch was used for moving a hand car from the main track to the siding or from the siding to the main track instead of lifting the car as the rule requires, and that one of the laborers locked the switch in the wrong position when their work was completed. The man gives no explanation or reason for this abnormal action. All of the operations were done within the view of the foreman. The facts are set forth in the report at considerable length but there is no comment. The switch light was not burning, but the engineman might have seen the target. The fireman did not see it until he was within about 300 ft. of it.



Observation Car Interior on the Broadway Limited, P. R. R.

Railroading in 1837

THE 43-page pamphlet issued by the Railway & Locomotive Historical Society, as its bulletin No. 13, which was briefly noticed in the *Railway Age* of August 13, page 305, is the most interesting sketch of early American railroad practice that has been brought to public notice for many a day. This study of "locomotive engines and the police and management" of eastern railroads—there were not many except eastern roads at that time—was made for the Baltimore & Ohio; and one of its authors was Benjamin H. Latrobe, a railroad pioneer whose writings were always of value. The term "police and management" covers all sorts of details of operation, such as an operating officer would be disposed to inquire into. Eight railroads are included in the list. The first, the Long Island, is the only one still operating independently. The names of the others (followed by the name of the present operating company) are as follows: New Jersey (Pennsylvania); Boston & Providence (New York, New Haven & Hartford); Boston & Lowell (Boston & Maine); Boston & Worcester (Boston & Albany); New Jersey & Paterson (Erie); Camden & Amboy (Pennsylvania); Philadelphia & Columbia (Pennsylvania).

The studies of locomotives include all sorts of questions about wheel arrangements, the best mileage per month, the quantity of fuel used per trip, cost of repairs, etc. Horses were still in use to some extent on the Long Island and the New Jersey & Paterson.

On the Philadelphia & Columbia, the state of Pennsylvania had 40 locomotives in service, including no less than 24 built by M. W. Baldwin. A statement of the cost of locomotive repairs on this road for the year ending October 31, 1837, shows a total of \$18,567. A note at the bottom indicates that 13 of the 40 engines had for the last six months of the year done nearly all the work on the road. The "first-class" engines did double the work of the second class, but with only one-third more fuel. Two engines, the Juniatta and the Susquehanna, "encountered" each other, and the consequent repairs cost \$2,200. Another item of \$400 was caused by the locomotive Mississippi "running off the road." In one case, where the firebox gave way, repairs were made at Baldwin's expense.

For fuel, wood of almost any kind was used, and in

every stage of seasoning, but for rapid generation of steam bituminous coal was used on this road in conjunction with the wood. This coal cost 30 cents a bushel.

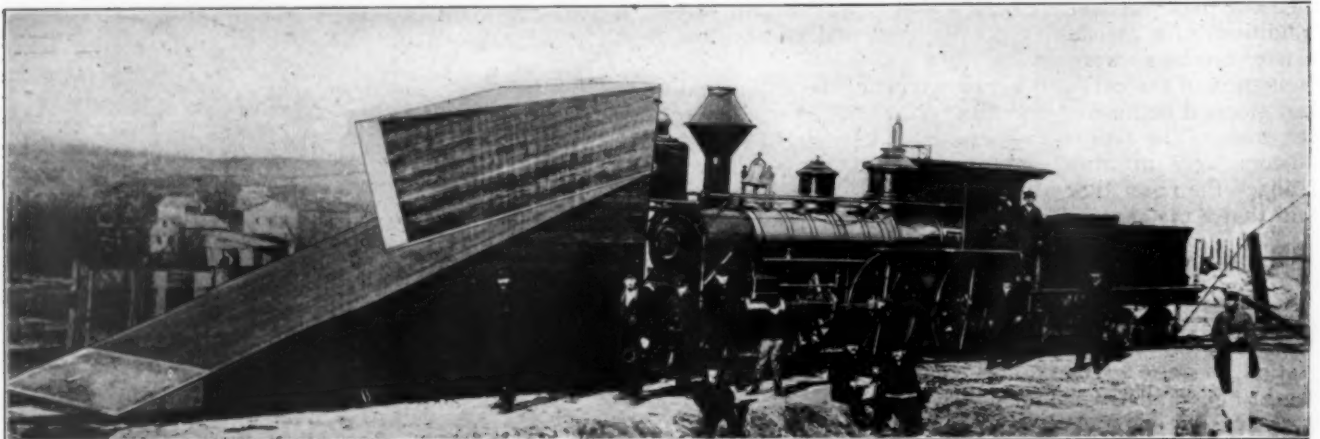
Varied experiments in construction were being tried. On one engine there was a screw by which on up grades 2,000 lb. of the tender could be transferred to the driving wheels. Spark catchers were used at both the top of the chimney and at the bottom; the top was considered the best.

On the Boston & Providence, the bridges, of which there were 1,200 linear feet, were made upon Long's patents, a truss which, however, was not much liked, because of the difficulty of preventing deflection. This road had ten locomotives and they were made by five different builders—two English and three American. Its cars, four-wheel, weighed 5,800 lb. each and their resistance on straight and level track had been found to be 9 lb. a ton.

The notes under "police and management" deal largely with salaries of officers and employees, collection of fares, and details of discipline. On the Long Island, the "first engineman" ran always with the passenger train and received two dollars a day. The "second engineman," running with the burthen train, received \$1.50 a day. The passenger cars were lettered from A to Z and the tickets were lettered correspondingly.

On the Boston & Lowell, the locomotive "Patrick" on January 18, 1837, hauled 179 gross tons from Boston to Lowell, 26 miles, in two hours, 15 minutes. Two-thirds of this weight was freight and one-third cars, most of which weighed 3,800 lb. each. On this 26 miles of line there were about 100 bridges where a highway went either above or below the railroad, and there were only two or three grade crossings; at these places, men were stationed "to keep the track clear of impediments." The burthen cars of the Boston & Worcester were made in Baltimore.

It is in the rules giving the right of trains to the road that the modern reader finds the most curious contrasts when considering the practices which were in vogue in 1837, but it is to be borne in mind that the ordinary speed at that early date was not above 10 or 15 miles an hour, and that running under control was the regular practice in a great many places. The Boston & Worcester required passenger engines to cross highways at not over 12 miles an hour and freight engines at not over 8. Complaints had been made that the trains crossed roads too fast.



From *New York Central Magazine*. Contributed by F. W. Crosby, New York & Harlem (N. Y. C.), White Plains, N. Y.

Styles in Snow Plows in 1871

Communications and Books

Advocates Greater Speed

JAFFREY, N. H.

TO THE EDITOR:

I was interested in a cartoon which appeared under "Odds and Ends of Railroadings" in the issue of July 16, depicting a train flying through the air, representing air service as presented by the railroads. The caption was: "Will it come to this?" I should like to say in answer to the cartoonist's question that he has come nearer to the only real solution of the problem of competing air-planes than he probably thinks.

Not a train that flies through the air, but a train that flies along the rails, is needed. By this I mean that the way for the railroads to compete with air transport is not by buying up all competing companies, euphemistically called "co-ordination," but by making the railroads a better means of transportation than the airways. The most obvious advantage which the airways hold over railways is their higher speed. There is, however, no reason why the railroads should not compete with them in this respect. There has been much talk about the higher train speeds which will "come with time," but, in this instance as in the case of electrification, there is too much said and too little done. An article in a popular weekly recently stated that train speeds of 200 m.p.h. would soon become common. That sounds great, but why not do something toward it, instead of sitting around talking about it?

I am interested in the speeding up of trains, not for its benefit to the public, although that is enough to warrant it, but for its benefit to the railroads, for it is obvious that the railroads cannot survive long without it.

HERBERT E. BIXLER.

Sound the Whistle Close to the Crossing

ST. LOUIS, MO.

TO THE EDITOR:

The letter on the "Three-second whistle signal" in the *Railway Age* of July 23, page 156, signed "G. S.," referring to the address delivered by me before the Safety Section, A. R. A., at Chicago last April, is an interesting contribution to this much discussed subject, but it credits me with words that I did not utter. I practically agree with everything that is said by "G. S." except that I did not in any way intimate that the whistle signal should be sounded all the way from the whistling post to the crossing. I expressly stated that all whistling at the whistling post is steam and energy wasted. The only object of my paper was to set forth the value of giving a whistle signal close to the crossing, instead of back at the whistling post. The "three-second whistle" which "G. S." advocates, practically serves the same purpose as the whistle signal that I advocate. I did not even suggest *more* whistling.

D. G. PHILLIPS,
Superintendent of Safety, Wabash Railway.

[A reference to the proceedings of the Safety Section meeting leads us to excuse Mr. Phillips' critic. The critic evidently assumed that the essay recognized the necessity of *beginning* the sounding of the whistle at the whistling post, because in most of the states the statutes make such beginning compulsory; and also because Mr. Phillips did not specifically advocate the omission of the whistling which is required by law. The fact that certain roads have had a rule requiring the whistle blasts to be kept up throughout the distance of 80 rods, from the post to the crossing, would also tend to encourage such an assumption.—EDITOR.]

New Books

Bulletin of The National Research Council. Compiled by Clarence J. West and Ervye L. Risher. 6¾ in. by 9¾ in., 153 pages. Published by The National Research Council of The National Academy of Sciences, Washington, D. C. Price \$1.00.

This bulletin is the third edition, revised and enlarged, and is published to meet the demand for information regarding industrial research laboratories in the United States. It contains a list of all laboratories in this country about which the compilers were able to obtain information; the name and address of the company supporting the laboratory, and the address of the laboratory if different from that of the company; the name of the director of research and the number of engineers on his staff, and the chief lines of research work carried on at the laboratory. The present revision contains data pertaining to 1,000 laboratories, a considerable number of which are laboratories maintained by railroads and railway supply companies.

Universal Directory of Railway Officials, 1927. Compiled from official sources under the direction of the editor of the *Railway Gazette* (London). Bound in cloth, 127 pages, 5¾ in. by 8¾ in. Published by the Directory Publishing Company, Ltd., Tothill street, Westminster, London, S. W. 1. Price, 20s.

Providing a stock of essential information concerning all railways in the world, this book represents a counterpart of the American Pocket List. The names of all railways are arranged alphabetically by countries and continents and in the case of railways outside of English speaking countries the name of the railroad in the language of the particular country in which it is located is added to facilitate the addressing of mail. One section of the book contains detailed information concerning railway institutions, associations, societies and unions in the British Isles. Information is given for each railroad concerning: Mileage, gage, number of locomotives, cars, motor vehicles and steamboats, canals, docks and wharves, as well as the names and addresses of all of the principal officers. Cross reference is simplified through an alphabetical list of all railways and an alphabetical list of officers whose names appear in the book.

Bridge Architecture, by Wilbur J. Watson. 288 pages. 11½ in. by 14¼ in. Bound in cloth. Illustrated. Published by William Helburn, Inc., 15 East Fifty-fifth street, New York City. Price \$17.50.

This book contains what is probably the most remarkable collection of bridge pictures ever assembled between two covers. In addition to 199 full-page plates depicting the bridges of all times and all nations, there are small views illustrating various structural details to supplement the text, which is both descriptive and critical. The material relating to ancient and medieval construction is classified according to historical periods, while the treatment of modern bridges is segregated according to types of construction. Modern railroad structures are represented by pictures of such structures as the Hell Gate, Quebec and Castleton bridges and the Tunkhannock viaduct.

The value of this book to the engineer lies in the wealth of suggestive examples it places at his disposal for the proportioning and detailing of bridges, while the text affords him an opportunity to see bridge engineering through the eyes of the architect. The arch naturally has the greatest aesthetic appeal and is accorded the greatest attention, while the author manifests a lack of sympathy for the engineers' work in simple truss and girder spans, which are brushed aside as utterly lacking in beauty. The printing, engraving and paper stock are of the highest quality.

Signal Section, American Railway Association; Proceedings, Volume XXIV, 1926. 779 pages. 6 in. x 9 in. Bound in cloth. H. S. Balliet, secretary, 30 Vesey Street, New York City. Price \$6.

This volume contains the committee reports and reports of discussions at the meetings held in Los Angeles, in September, 1926, and at Chicago in March, 1927; the material which was published in periodicals Nos. 1, 2, 3 and 4, issued respectively in August and October, 1926, and February and April, 1927; supplemented by a statement of the results of letter ballots submitted this year, and an index of 20 pages.

Books and Articles of Special Interest to Railroaders

(Compiled by Elisabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Consolidation of Railroads—3d Supplement to the List of References. The books and articles are listed chronologically as in the list and previous supplements and were published in the year 1926 and to August 1927. 24 p. Issued by Library, Bureau of Railway Economics, Washington, D. C., Apply.

The Famine in Soviet Russia 1919-1923—The Operations of the American Relief Administration, by H. H. Fisher. Anyone keen to have more than an academic interest in transport breakdowns and what they entail is referred to Chapters 7 to 9 inclusive, while under the index heading "Transportation" are further references to railway, camels, and Fords as used by an "A. R. A." that will be more familiar to railroaders who read this book. 609 p. Pub. by The Macmillan Co., New York City, \$5.

The Highway Grade Crossings Problem, by Robert H. Ford. Pamphlet reprint of paper before Western Society of Engineers that analyzes the problem and suggests definite steps for solution. 10 p. Publisher not given, but probably available from office of Rock Island Lines, Chicago.

The Railroad Labor Board, by H. D. Wolf. "The author has endeavored to set forth the problems which the Labor Board had to meet, the manner in which it met them, and the events and circumstances which led to its abolition." 473 p. Pub. by University of Chicago Press, Chicago, Ill., \$4.

Periodical Articles

Harom il Pullman, by Burgess Johnson. Omens and adventures of a traveler in the Pullman car "Clarabelle." Century Magazine, September, 1927, p. 617-618.

Please Pass the Box Car, by Wm. G. Shepherd. What the "A. R. A." best known to railroaders has accomplished in car service with the co-operation of shippers through the Regional Advisory Boards, so that "For ninety days ahead, thanks to the accurate forecasts. . . the railroads of the United States, at any given time, know not only what cars will be needed for also where and when." (p. 8) Collier's, August 13, 1927, p. 8-9, 41-42.

Schedule Or—, by Leo F. Creagan. A story in which an old-time superintendent and a misfit with a new title and authority disagree on the motive-power and schedule of a "crack" limited. Popular Science Monthly, September, 1927, p. 14-16, 139-143.

Sierra Leone Railway System, by George C. Cobb. Description, with map and illustration of a far-off African line with some unusual construction features and an increasing passenger traffic. Commerce Reports, August 15, 1927, p. 402-403.

DURING 1926 there arrived at and departed from Croyden air port near London, England, 26,500 passengers, more than half of whom were carried by the Imperial Airways, according to a statement issued by the Bankers Trust Company of New York. This figure is more than double that of the preceding year. In 1926 on the various air lines in France 13,633 passengers were carried and in Germany 56,268.

Looking Backward

Fifty Years Ago

This volume contains the committee reports and reports of establish a competitor to the Western Union Telegraph Company has ended in a virtual amalgamation of the rivals. The managers of the Western Union and the Atlantic & Pacific companies have made a 20-year compact to pool their earnings on the basis of 87.5 per cent and 12.5 per cent, respectively.—*Railway Age*, August 23, 1877.

The annual report of the Chicago & North Western, prepared by Albert Keep, president, represents a departure in railroad reports in that the very first sentence gives that particular piece of information most interesting to the stockholders, which in most cases has to be found by sundry calculations more or less laborious. "The net result of the operations," says Mr. Keep, "shows a profit of \$1,078,226.27 for the last fiscal year, from which a dividend of 2½ per cent was paid to the preferred shareholders in the month of December last."—*Railroad Gazette* August 17, 1877.

Twenty-Five Years Ago

James J. Hill, who always has a basis of facts for his estimates, predicts that the earnings of the Northern Securities Company for the current year will be \$150,000,000. This means an increase of \$36,800,000 in the earnings of the Chicago, Burlington & Quincy, the Northern Pacific and the Great Northern over 1901. The grain traffic and immigration will be largely responsible for the increased earnings of the 20,000 miles in the new system.—*Railway Age*, August 22, 1902.

The Baltimore & Ohio now has under way improvements which are designed to make it the best freight carrying railroad from the middle west to the sea, and obviously the low grades and easy curves of a first-class freight road adapt it to carrying passengers also. The scheme contemplates rating trains for a 0.3 per cent grade from Chicago to Baltimore, this result to be secured by building new sections of line and introducing one helper grade in each direction. All grades under the road's announced program are to be compensated for curvature.—*Railroad Gazette*, August 22, 1902.

Ten Years Ago

President Wilson on August 9 signed the bill providing for the reorganization and enlargement of the Interstate Commerce Commission, which requires him to appoint three new members to bring the total membership up to nine.—*Railway Age Gazette*, August 17, 1917.

Four experimental 120-ton gondola cars, equipped with six-wheel trucks, have been completed and delivered to the Virginian railway for use in bituminous coal carrying service between West Virginia fields and the tide-water terminal at Sewalls Point, Va.—*Railway Age Gazette*, August 17, 1917.

An abstract of statistics for the year ended June 30, 1916, just issued by the Interstate Commerce Commission confirms the fact that the average freight rate per ton-mile received by the railroads in 1916, 7.16 mills, was the lowest on record. The lowest rate previous to that since 1891 was 7.24 mills per ton-mile in 1899.—*Railway Age Gazette*, August 17, 1917.

On August 11, just 20 working days after the order was placed, the Baldwin Locomotive Works completed the first locomotive on its order from the United States Government for 150 engines for service with the American troops in France. The contract was given preference over all other work in the Baldwin Works, either for foreign or domestic customers.—*Railway Age Gazette*, August 17, 1917.

Odds and Ends of Railroading

The vanishing American is doing a lot of it at the grade crossings.

The Turkish women are apparently rapidly losing their retiring, discreet dispositions, if press dispatches from that country are to be believed. Feminine sympathizers of striking railway firemen are reported to have stretched out on the tracks to block the progress of trains. A firehose even was not sufficient to dislodge them and each one had to be forcibly removed by the police.

Coolidge, Ariz., a stop on the Southern Pacific, evidently tiring of playing the role of oasis in a desert which is soon to become the center of the Casa Grande-Florence reclamation project, has protested to the Arizona Corporation Commission against the further use by the railroad of a large palm tree as a station. Citizens of the town ask the construction of a more fitting structure for use as a station.

Governor Alvan T. Fuller of Massachusetts has found the happy medium of co-ordination between the automobile and the railroad train. Governor Fuller has made a fortune as a dealer in automobiles. To solve the problem of congestion on the roads between Boston and his summer home at Rye Beach, N. H., he uses his automobile to take him from the State House to the North Station, then takes a Boston & Maine train to Newburyport, where he takes an automobile again from Newburyport to Rye.

C. W. Galloway, vice-president of the Baltimore & Ohio, is a member of one of the oldest railway families in the country. William Galloway, his grandfather, entered the service of the B. & O. in 1833, when the first horsedrawn cars carried passengers between Baltimore and Ellicott's Mills. When the first steam engines were put on, Mr. Galloway became the first engineer and continued in active service with the B. & O. for 54 years. Charles B. Galloway, father of Vice-President Galloway, was also a passenger locomotive engineer, while his maternal grandfather, John R. Smith, was superintendent of the B. & O. shops at Sandy Hook in the early days. His great uncle, Christian Smith, was the inventor of the sandbox for locomotives.

Problem for Casey Jones

[As Bobby Jones was putting on the sixteenth green an engineer stopped his freight train and silently watched Jones hole out. Then the engineer tooted and the train started again.—From a dispatch from St. Andrews, Scotland.]

When Casey Jones was engineering
And careering down the track,
When old Number Nine was puffing
And chuf-chuffing through its stack
With its piston rods a-driving,
Ever striving for more speed,
When the train dispatcher told him
"Let 'er shoot!"
He'd shoot indeed!

What would Casey Jones have thought
If his eye a signal caught
When approaching some golf course,
Meaning: "Hold that iron horse!"
Once a herd of bison, tossing
Manes, was crossing right o' way.
'Twas observed by Casey's fireman
Things looked dire, man. Long delay?
Casey Jones, in want of missile,
Jerked the whistle, what a shriek!
How the herd of thunder scattered,
As he shot past like a streak!
What would Casey Jones have said,
He whose whistle woke the dead,
If some meadow shinny sheik
Said: "Hush-shush, you mustn't shriek!"

Hostile redskins never stopped him.

Bandits hopped him—just one trip—

Casey Jones was pleased to meet 'em

But he beat 'em to the hip.

Cyclones, wrecks ne'er served to slow him

And we owe him words sublime.

Could a guy in golfing knickers

Make him fail

To be on time?

Would he loiter at the tees,

Would he cease to plow the breeze?

Would he halt his hissing hobby?

Well, he might—for Cousin Bobby!

—GENE MORGAN IN THE CHICAGO DAILY NEWS.

A Model Locomotive Much in Demand

Back in the early nineties, Michael Gorman, then a passenger fireman on the Lehigh Valley, commenced work on this miniature of the American type passenger locomotive which was in general service at that time. He used a drill press and a lathe but fashioned most of the parts by hand. In all, Mr. Gorman, who died last September, spent about 12 years in the construction of the model, working on it at odd times at his home in Waverly, N. Y.

The "Donald," as Mr. Gorman named his model (after his deceased son), is a miniature replica in every detail of Lehigh Valley Locomotive 218; Weight 100 lb.; gage 5 in. It allows steam pressure of 20 lb.; develops 1/20 h.p. and a speed of 25 m.p.h. It may be operated by electricity or alcohol fuel; it has



The "Donald" on Display in Lobby of a New York Theater

an electric headlight, marker and tail lights, airbrakes and other modern equipment.

For several years this model has been on display in a glass case at the Lehigh Valley station in Wilkes-Barre, Pa. Deposit of a five-cent piece in the slot-machine puts the wheels in motion for a few minutes.

The miniature has also been much in demand by business houses as a display feature. It was used in a travel exhibition by Best & Company, a New York department store; by the Guardian Trust Company of Newark, N. J., in its Port Newark Terminal Display; by the Parker Pen Company of New York in a vacation display, and at other prominent locations. At present it is in demand by motion-picture houses exhibiting "The Black Diamond Express," a film recently released by Warner Brothers.



WILLIAM J. CARR has been appointed a member of the Railroad Commission of California succeeding Harley W. Brundige. Mr. Carr served in the California Senate from 1913 to 1921 and recently had been engaged in the practice of law at Los Angeles.

A STRIKE of trainmen employed by the Western Maryland is reported as threatened following the discharge of a yard conductor who is a legislative representative of one of the brotherhoods. Cause for the discharge was given but a "conspiracy" is alleged. A strike of enginemen on this road has been in effect for about two years.

THE SUPREME COURT of New Jersey has decided in favor of the Lehigh Valley in a dispute between that road and the City of Jersey City over a matter of water rents. The city attempted to deal with the alleged arrears in payments as back taxes jeopardizing the railroad's property but the court ruled otherwise, stating that water rents were arrived at by methods and tabulations permitting arbitrary and possibly inaccurate results.

National Safety Council

The Steam Railroad Section of the sixteenth annual safety congress of the National Safety Council, which will be held at Chicago on September 26-30, will convene on September 27, 28 and 29. Addresses will be made by L. C. Fritch, vice-president of the Chicago, Rock Island & Pacific; R. C. White, assistant general manager of the Missouri Pacific; H. Johnson, president of the Duluth & Iron Range; L. A. Downs, president of the Illinois Central; L. F. Lorenz, director of the Bureau of Statistics of the Interstate Commerce Commission; and G. G. Dowdell, chief surgeon of the Illinois Central.

Group Life Insurance

The Cleveland (electric) Railway Company, employing 5,000 men, has contracted for group insurance for its employees under a plan said to be the most comprehensive ever adopted in the country. The policy provides not only for life insurance, as in ordinary policies; double indemnity in case of accidental death, and indemnity where

an employee is maimed but also includes a retirement or pension system. The life insurance is paid for entirely by the employer, but the other features are regulated by a co-operative program; in which, however, the employer makes much the larger contribution. More than 99 per cent of the employees agreed to the plan within one week.

Suits Against B. of L. E.

Several suits, involving almost \$10,000,000, have been brought against the Brotherhood of Locomotive Engineers' Bank, Cleveland, O., and the Brotherhood of Locomotive Engineers for alleged illegal acts in investment activities. The largest suit, for \$7,231,176, has been instituted by stockholders of the Brotherhood Investment Company, specifically alleging illegal land transactions in Florida entered into by officers now deposed.

Alvanley Johnston, grand chief engineer of the Brotherhood, has announced that the development of the Brotherhood's property at Venice, Fla., will continue. Associated with Mr. Johnston as financial counsel are two bankers, C. H. Huston and J. L. Williams.

Safety Program for September

Circular No. 161, of the Safety Section of the American Railway Association, prescribing the special activities which the committee deems most important for the month of September, is made up mainly of figures, taken from the Interstate Commerce Commission's records, showing the number of employees (on duty) killed and injured in the first three months of 1927. The committee congratulates the railroads on a decided improvement as compared with the first quarter of 1926, there being decided decreases in all of the totals except employees killed in industrial accidents. The casualties to trainmen, however, show less favorable results under one head, accidents in the use of hand brakes; and to emphasize this point, the committee has issued a poster showing the proper and improper use of brake sticks. The picture shows that a brakeman should hold the stick in his left hand, using it to push, instead of holding it in the right hand and pulling.

C. & N. W. Trackmen's Pay

Wage increases amounting to \$300,000 a year were awarded by the board of arbitration which considered the demands of the maintenance of way employees on the Chicago & North Western, in a decision announced at Chicago on August 15. Section and extra gang foremen received an increase of \$5 a month and a graduated scale of pay was established for section laborers, based on the length of service, the minimum rate being lowered one cent an hour, with annual increases of two cents an hour for the next two years. The minimum rate for extra gangs was lowered three cents an hour and increases ranging from one-half to one and one-half cents an hour were awarded carpenters, painters, masons and masons' helpers.

Montreal Meeting of Signal Section

The Signal Section of the American Railway Association, at its stated meeting to be held at the Mount Royal Hotel, Montreal, on September 13, 14 and 15, will consider the report of the special committee on highway crossing protection at the end of the first morning session; and the other committee reports are tentatively scheduled to be brought up in the following order: X, VII, I, V, IV, XI, II, VI, III.

On Tuesday, X, Signaling Practice; VII, Contracts and Valuation; I, Economics of Railway Signaling. On Wednesday, V, Instructions; IV, Direct Current Automatic Block Signaling; XI, Chemicals; II, Mechanical Interlocking. Thursday, VI, Designs; III, Power Interlocking.

Baffling Crossing Problems

The way in which the New York State law for the elimination of grade crossings operates in many small towns, is illustrated by the action of the State Public Service Commission, last week, in the case of "Rice Clark's" crossing on the Ulster & Delaware. This crossing is at the state highway leading from Oneonta to Stamford. A count made in August, 1925, showed 1,518 vehicles and 13 trains passing in one day. The highway approaches

on a grade of about seven per cent and visibility is bad. Several accidents have occurred at the crossing, although there is a bell and an automatic flashing signal. The cost of elimination, estimated at \$90,000 is in excess of the statutory limitation. The crossing is regarded as very dangerous both by town officials and by local property owners, but they are unwilling to assume the excess cost and the county of Delaware will not render aid.

Memorial to E. W. Grice

The Railroad Y. M. C. A.'s on the Chesapeake & Ohio on July 30 dedicated at Blue Ridge, N. C., a memorial to E. W. Grice, formerly assistant to the president of the C. & O., who died last year and who was an ardent supporter of the C. & O. Railroad Y. M. C. A. The memorial takes the form of a 5-column structure of native stone, surmounted by an octagonal concrete roof in which is mounted a large locomotive bell which will be used to call class sessions at the Blue Ridge Y. M. C. A. summer conference. In the center of the structure is a clear spring of cool mountain water. Set in the stone work is a copper plate inscribed as follows:

EDWARD W. GRICE
1862-1926

AN OFFICIAL OF THE
CHESAPEAKE & OHIO RAILWAY
FOR THIRTY-THREE YEARS
A LOYAL FRIEND OF THE
RAILROAD Y. M. C. A.

New Stations Wanted at New Orleans

Three sites for the location of union stations in New Orleans, La., have been picked by G. E. Smith & Co., St. Louis, Mo., consulting engineers, engaged by the Louisiana Public Service Commission to make a study of the passenger station needs of that city. The report presented by the engineers recommends the selection of a site on the Old Basin canal, west of Basin street, between St. Louis and Orleans streets, if it is decided that only one station should be built. If the plan for two union stations is adopted the report recommends the construction of one on the Old Basin canal for the use of the Louisville & Nashville and the Southern and a second station one block west of the existing station at Howard avenue and South Rampart street for the use of the Illinois Central, the Texas & Pacific, the Missouri Pacific, the Southern Pacific, the New Orleans, Texas & Mexico (Mo. Pac.) and the Louisiana Railway & Navigation Company.

Famous Locomotives at Baltimore Exhibition

The locomotive "DeWitt Clinton" with its train—which flourished on the New York Central in 1831—has been sent to Baltimore to be a feature of the coming centenary celebration of the Baltimore & Ohio (September 24 to October 8); and the "John Bull" of the Camden & Amboy (New Jersey), said to be now the oldest complete locomotive in America, has been taken out

of the Smithsonian Institution, at Washington, to be put in running order for the same celebration.

The "General," the famous locomotive which figured in the Andrews raid, in the Civil war, which for years past has been on exhibition in the passenger station of the Nashville, Chattanooga & St. Louis at Chattanooga, has also been sent to Baltimore, to be exhibited in the centenary celebration.

In addition the "King George V," the latest passenger locomotive of the Great Western (England), and the same road's historic "North Star," are en route to this country, having been shipped from Cardiff on the SS. Chicago City on August 5.

Tool Foremen's Convention Program

The fifteenth annual convention of the American Railway Tool Foremen's Association will be held at the Hotel Sherman, Chicago, August 31 to September 2, inclusive. The program arranged for this meeting is as follows:

WEDNESDAY, AUGUST 31

Invocation—Rev. Orvis F. Jordan.
Opening address—B. N. Lewis, mechanical superintendent, M., St. P. & S. S. M.
Response—O. D. Kinsey, president.
President's address—O. D. Kinsey, C. M. & St. P.
Report of secretary-treasurer, G. G. Macina, C. M. & St. P.; and other business.
Report of Standing Committees on Standardization of Present Special Locomotive Taps and Dies—A. A. Ferguson, chairman.

THURSDAY, SEPTEMBER 1

Address by H. P. Allstand, assistant superintendent of motive power, C. & N. W.
Response by C. A. Shaffer, general supervisor of machinery and tools, Illinois Central.
Report of Standing Committee on Recommendations for Improving Railroad Work through Standard Gage and Measuring Systems—M. B. Roderick, chairman.
Report of Standing Committee on Heat Treating Methods and Equipment Recommended for Small and Large Railroad Shops—H. L. Taylor, chairman.
Election of officers.
Special visit to exhibits.

FRIDAY, SEPTEMBER 2

Report of Standing Committee on Small Tools and Devices for the Locomotive and Car Shops—M. Branch, chairman.
Report of Standardization Committee—E. J. McKernan, chairman.
Closing business.
Adjournment.

Change Northern Terminus of Hudson Bay Line

Following an announcement at Port Nelson, Manitoba, by Frederick Palmer, a British engineer engaged by the Canadian government to make a report, that he would recommend Fort Churchill, instead of Port Nelson as the Bay terminal of the Hudson Bay Railway, Charles A. Dunning, Minister of Railways and Canals, who is just completing a month's visit of inspection in that region, stated in Winnipeg that work would commence immediately on the completion of the Hudson Bay Railway to Fort Churchill.

"It will not be necessary to wait for another session for sanction of this change of policy," said Mr. Dunning, "as the government has given me full power to proceed with the road as I see fit. I intimated at last session that there might be some changes in plans and provision was

made to take care of this." The minister said that construction will begin from both ends.

The end of steel is now at Mile 356, near Limestone river. It will be deviated from this point almost due northwest to Churchill, a distance of 150 miles. In the meantime, he said, development will be taking place at the harbor to make it possible to have the port ready for navigation when the line is completed.

Mr. Dunning emphatically stated that it should be completed within two years. "It would be a poor road, 150 miles in length, which could not be finished in two years," he said.

Pullman Porters' Demand for Arbitration Fails

The Brotherhood of Sleeping Car Porters, which last December asked the United States Railway Mediation Board to hear its plea for an increase in wages and the abolition of tipping, has been unsuccessful in its attempt to secure arbitration. The Brotherhood was formed about two years ago and in December, 1926, presented to the Pullman Company certain demands for increases on the grounds that the Brotherhood represented the porters and maids in the employ of that company. The Pullman Company, however, would not recognize the brotherhood on this basis, saying that an agreement between the company and its porters and maids had been negotiated in conference between representatives of the company and representatives of the porters and maids several years ago. The Brotherhood then appealed to the Mediation Board which took the matter up with the Pullman Company. L. S. Hungerford, vice president and general manager, replied as follows:

"* * * When the Railway Labor Act was passed, there was in effect, and now is in operation, an agreement between the Pullman Company and its porters and maids. This agreement fully meets all the requirements of the law and both parties are maintaining and complying with its provisions.

"No dispute, and therefore no situation requiring mediation, exists between the Pullman Company and its employees of the classes mentioned. Should any dispute arise, the agreement referred to provides ample machinery for conference and settlement. * * * In these circumstances, and because of the existence of the agreement above referred to, the company cannot properly confer with the persons mentioned in your letter."

Whether the demands will be pressed further has not been made known. Section 10 of the Act which created the Mediation Board provides that, if a dispute between a carrier and its employees be not adjusted under the provisions of this Act and should, in the judgment of the Board of Mediation, threaten substantially to interrupt interstate commerce to a degree such as to deprive any section of the country of essential transportation service, the Board of Mediation shall notify the President, who may thereupon, in his discretion, create a board to investigate and report respecting such dispute.

Traffic

Hearings in the I. C. C. investigation of rates on grain and grain products which were resumed at Wichita, Kan., on July 11, were adjourned on August 11. They will be reopened on September 15, at Minneapolis, Minn.

The Illinois Central development bureau, beginning with August, is publishing a monthly magazine "Farm & Factory" which it is circulating among those engaged in agriculture and industry for the purpose of promoting their development.

The application of the Northern Pacific and the Minneapolis, St. Paul & Sault Ste. Marie to establish joint passenger train service between Duluth, Superior, St. Paul and Minneapolis has been assigned by the Interstate Commerce Commission for further hearing on September 27 at Minneapolis, before Examiner Brennan.

The Women's Traffic Club of Los Angeles, at its meeting on August 3, was addressed by Messrs. James A. Sheridan and James H. Smiley. Miss Gertrude B. Sears, president of the club, was elected delegate to the annual convention of the Associated Traffic Clubs of America, to be held in Richmond, Va., on October 25 and 26.

The Canadian Pacific in conjunction with the Wabash, the Michigan Central and the Boston & Maine, has established fast freight service between Chicago and Boston, Mass. Trains will leave Chicago at 6:30 p. m. and 7:30 p. m. over the Wabash and three will leave at 5 p. m., 7 p. m. and 8 p. m. over the Michigan Central. All will be turned over to the Canadian Pacific at Detroit, and the goods will arrive in Boston by the Boston & Maine at 11:50 p. m. the third night.

The Lehigh Valley has filed with the Interstate Commerce Commission a protest against the Commission's order of June 14 with respect to the divisions of joint rates on anthracite coal from points on the L. V. to points on the lines of the New York, New Haven & Hartford and the Boston & Maine. The protest stated that while the Lehigh Valley will not now file a petition for a rehearing on its behalf, it does not voluntarily acquiesce in the application of the Commission's order and intends to file a petition praying for relief as soon after the effective date of the Commission's order (September 1) as the data showing the effect thereof can be secured and compiled.

Proposed Coal-Rate Reduction Suspended

The Interstate Commerce Commission on August 16 ordered the suspension until March 28 of a reduction of 20 cents a ton in proposed tariffs on lake cargo coal from mines in Kentucky, Tennessee, Virginia and West Virginia to Lake Erie ports filed by the southern carriers following a similar reduction ordered by the Commission in the rates on northern roads from mines in the Pittsburgh, Ohio No. 8

and Cambridge districts. The suspended tariffs were filed by the Chesapeake & Ohio, the Cincinnati, New Orleans & Texas Pacific, the Louisville & Nashville and the Norfolk & Western to become effective August 28.

Panama Canal Traffic During July

During July, 1927, 509 commercial vessels and 16 small launches transited the Panama Canal, according to the Canal Record. Tolls on the commercial vessels aggregated \$2,215,515.99, including \$3,400.54 collected on a supplemental bill for a transit in a previous month, and on the launches, \$141.51, or a total tolls collection of \$2,215,657.50. The daily average number of transits of seagoing vessels for the month was 16.42, and the daily average tolls collection, \$71,358.56. The average amount of tolls paid by each of the commercial transits was \$4,346, as compared with \$4,330.50 for the month of June, 1927. In these averages the \$3,400.54 supplemental collection is not included.

With respect to the number of commercial transits, July was the largest month since the opening of the canal, the former record being 506 made during December, 1923, and March, 1926. The tolls collection on these 509 transits was the fourth highest in the history of the canal, being exceeded by December, 1923, January, 1924, and March, 1926.

Rates on Deciduous Fruits From California Ordered Reduced

The Interstate Commerce Commission has ordered reductions in the rates on fresh deciduous fruits, other than apples, from California to eastern destinations, on a complaint filed by the California Growers' & Shippers' Protective League. The rate of \$1.73 per 100 pounds to destinations in transcontinental groups A to M inclusive (except Group J) was found unreasonable to the extent that it exceeds \$1.60 and the rate of \$1.62 to Group J was found unreasonable to the extent that it exceeds \$1.50. The report of the commission discusses at some length the application of the Hoch-Smith resolution to the case and it prescribes these rates for the future as the "lowest possible lawful rates compatible with the maintenance of adequate transportation service and necessary to promote the freedom of movement of the specified products of agriculture now affected by depression." An increase in the carload minimum on grapes from 26,000 pounds to 30,000 pounds was authorized. Commissioner McManamy dissented and Commissioners Woodlock and Eastman wrote separate concurring opinions, while Commissioners Hall, Meyer, Campbell and Brainerd did not participate in the disposition of the case.

LUMBER BOUGHT BY THE RAILROADS of the United States in 1926 cost \$186,291,234 (including all forest products) as compared with \$170,305,031 in 1925, according to a statement issued by the Forest Service of the Department of Agriculture. This included 93,759,913 cross-ties, at a cost of \$101,000,000, an increase of approximately 6,000,000 ties as compared with the previous year.

Equipment and Supplies

Locomotives

THE LARSON LUMBER COMPANY has ordered a 2-6-6-2 Mallet type locomotive from the Baldwin Locomotive Works.

THE BOSTON & MAINE has ordered 10 eight-wheel switching locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of April 9.

THE PERUVIAN GOVERNMENT RAILWAYS have ordered 2 Mikado type locomotives from the Baldwin Locomotive Works and 1 Mikado type locomotive from the American Locomotive Company.

THE ERIE has ordered two 100-ton, oil-electric locomotives from the Ingersoll Rand Company, the General Electric Company and the American Locomotive Company, which companies co-operated in their manufacture.

THE UNION CARBIDE COMPANY has ordered one 60-ton, oil-electric locomotive from the Ingersoll Rand Company, the General Electric Company and the American Locomotive Company, which companies co-operated in its manufacture.

Freight Cars

THE CHICAGO, SOUTH SHORE & SOUTH BEND is inquiring for 4 caboose cars.

THE SHELL OIL COMPANY is inquiring for 25 tank cars of various capacities.

THE CARNEGIE STEEL COMPANY is inquiring for four flat cars of 70 tons' capacity.

THE NEW YORK, NEW HAVEN & HARTFORD is reported to have car repair work under way on about 2000 freight cars.

THE ARKANSAS POWER & LIGHT COMPANY is inquiring for one flat car of 40 tons' capacity and one flat car of 50 tons' capacity.

THE ARMSTRONG CORK COMPANY, Lancaster, Pa., has ordered seven tank cars from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of June 25.

Passenger Cars

THE CHICAGO & NORTH WESTERN is inquiring for 9 gas-electric rail motor cars.

THE CHICAGO GREAT WESTERN has ordered two combination mail and baggage cars from the Pullman Car & Manufacturing Corporation.

Iron and Steel

THE READING is inquiring for 300 tons of steel for two bridges at Sellersville, Pa.

THE ERIE is inquiring for 100 tons of steel for a small bridge at Jamestown, N. Y.

THE LEHIGH VALLEY has received bids on 1,200 tons of steel for its Newark Bay bridge.

THE BALTIMORE & OHIO is inquiring for 1,200 tons of steel for bridges on its Middletown branch.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered 250 tons of steel for several small bridges, from the American Bridge Company.

Machinery and Tools

THE KANSAS CITY SOUTHERN has ordered a 90-inch locomotive axle journal turning lathe, from the Niles-Bement-Pond Company.

THE SOROCABANA RAILWAY, of Brazil, has ordered equipment for its new repair shops at Sorocaba, Brazil, from the Niles-Bement-Pond Company. The new shops which have been completed are about 30 miles from the city of Sao Paulo. The order amounts to more than \$500,000 and is the largest single order which the Niles-Bement-Pond Company has received since 1921, when it sold the complete equipment for the shops of the Chilean State Railways. The Sorocabana shops will be the largest in Brazil and the buildings and equipment, it is stated, will be the most modern in South America.

Signaling

THE CONSOLIDATED RAILROADS OF CUBA have ordered from the Union Switch & Signal Company, a mechanical interlocking, eight working levers.

THE ATLANTIC COAST LINE has ordered from the Union Switch & Signal Company, an electro-mechanical interlocking, 16 levers, to be installed at Gary, Fla.

THE CANADIAN PACIFIC has ordered from the Union Switch & Signal Company, an electro-mechanical interlocking for Mile End, Montreal; eight working levers.

THE ERIE has ordered from the Union Switch & Signal Company, a complete electro-pneumatic interlocking, 26 working levers, to be installed at OS Tower, Jersey City, N. J.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company, a complete electro-pneumatic interlocking, 23 working levers, to be installed at SG Tower, Johnstown, Pa.

THE LEHIGH VALLEY has ordered from the General Railway Signal Company, an electric interlocking, 73 working levers, to be installed in Allentown, Pa., at the crossing of the Central of New Jersey.

THE SOUTHERN has ordered from the General Railway Signal Company, 65 locomotive equipments and 250 inductors, for use in the installation of automatic train control between Austell, Ga., and Birmingham, Ala.

Supply Trade

The Baldwin Locomotive Works is asking for bids on an office building to be built at Eddystone, Pa.

The Cyclone Fence Company, Waukegan, Ill., is planning the construction of an addition to its plant to cost \$18,000.

Ernest Baxter, general manager of sales of the Sheffield Steel Corporation, Kansas City, Mo., has been appointed assistant to the president.

Charles G. Olson, representative of the Chain Belt Company, with headquarters at Milwaukee, Wis., has been transferred to Detroit, Mich.

The Pittsburgh Steel Foundry Company, Glassport, Pa., has appointed Batchelder & Co., Chicago, its representative in charge of the sales in the western district.

The General Railway Signal Company announces that it has acquired from the Miller Train Control Corporation exclusive rights to make and sell the Miller devices in foreign countries.

Charles Gilman has been elected vice-president of the Canadian Concrete Products Co., Ltd., with headquarters at 50 Church street, New York, and 312 Transportation building, Montreal, vice Paul Kircher, deceased.

William E. Brown, manager of the central station department of the New York district of the General Electric Company, has been appointed New York district sales manager of the company, with headquarters at 120 Broadway, New York.

A. A. Hale, eastern sales manager of the Griffin Wheel Company, with headquarters at New York, has been elected vice-president, with the same headquarters. F. B. Flim, sales agent, with headquarters at Chicago, has been transferred to Cleveland.

C. W. Sullivan, western representative of the Leslie Company, Lyndhurst, N. J., with headquarters at Chicago, has resigned to become railroad representative of the Goodyear Tire & Rubber Co., Akron, O., with headquarters in the same city, to succeed Tom Plunkett, deceased.

Charles A. Perryman, former sales manager of the wire rope department of the Wickwire Spencer Steel Company, Inc., is now associated with the American Cable Company as assistant sales manager. Mr. Perryman's headquarters are at 105 Hudson street, New York City.

The Thomas L. Mount Company, 136 Liberty street, New York, has taken over the sole railroad agency for the Rochlitz automatic water still, manufac-

tured by the Weber Brothers Metal Works, Chicago. These stills are used for making distilled water for storage batteries.

George R. Berger, manager of western sales of the Gould Car Lighting Corporation and the Gould Storage Battery Company, has resigned to establish an office at 110 South Dearborn street, Chicago, to represent the Manheim Manufacturing & Belting Company, the Dura-tex Company, the Scutan Company, Inc., and the Lakeside Manufacturing Company.

Page & Ludwick, operating a sales office at 14 East Jackson boulevard, Chicago, have terminated their partnership. The business is now conducted by the Page Sales Service representing the Milwaukee Electric Crane & Manufacturing Corporation, the Thomas Flexible Coupling Company, the Royer Foundry & Machine Company, the Magnetic Manufacturing Company and the H. D. Conkey Company.

W. R. Bean, formerly research engineer of the Eastern Malleable Iron Company, Naugatuck, Conn., has entered the employ of the Grindle Fuel Equipment Company, Harvey, Ill., a subsidiary of the Whiting Corporation, as vice-president and consulting engineer. Mr. Bean will handle both sales and engineering problems in connection with the application of pulverized coal to steam boilers, furnaces or other steam producing units.

The shops and engineering department of the Miller Train Control Corporation have been moved from Danville, Ill., to Staunton, Va., where the home office of the company is located, and where P. X. Rice, electrical engineer, will be in charge of the electrical department and research work. W. B. Murray, chief engineer, has also been assigned to the position of sales engineer, with headquarters at the Washington, D. C., office.

J. F. Craig, for four years representative of the Westinghouse Air Brake Company at New York, has been promoted to assistant eastern manager. Mr. Craig was graduated from Cornell University with the mechanical engineering class of 1912. He entered the experimental department of the Westinghouse Air Brake Company in 1913, and left the company in 1916 for a time to engage in engineering work and to serve in the army during the war. He returned to the service of the Westinghouse Air Brake Company in 1920 as special engineer, with headquarters at Pittsburgh, Pa., and was transferred to the New York office as representative in 1923. H. B. Gardner has been appointed assistant to the resident vice-president of

the Westinghouse Air Brake Company at New York. Mr. Gardner was graduated from Union College, Schenectady, N. Y., as a mechanical engineer in 1916. He served several years with the Locomotive Stoker Company in mechanical and commercial activities, and entered the employ of the Westinghouse Air Brake Company in 1923 as representative. In 1926 he was appointed vice-president of the Westinghouse Friction Draft Gear Company, with headquarters at Chicago, and now leaves that position to take his new appointment as above noted in the parent organization. **N. M. Forsythe**, inspector in the automotive division of the Westinghouse Air Brake Company at St. Louis, Mo., has been appointed representative of the automotive division at Pittsburgh, Pa., and **P. B. McGinnis**, who resigned in 1925 as representative of the Westinghouse Air Brake Company at Chicago to go with an automotive company, has returned to the Westinghouse organization as representative of the **Westinghouse Friction Draft Gear Company**, with headquarters at Chicago.

Manning, Maxwell & Moore, Inc.

To set at rest various rumors concerning the activities and intentions of Manning, Maxwell & Moore, Inc., President C. A. Moore, Jr., of that company, has furnished the following facts:

"The manufacturing activities of Manning, Maxwell & Moore, Inc., have grown to be so important since the war that the company decided to go out of the general machine tool jobbing business, retaining only such selected outside lines of machine tools and for such territories as fitted in with the most efficient handling of our own products.

"This change was made both for our own advantage and for the advantage of the manufacturers whose lines we had handled for many years, most of whom have since adopted the policy of selling direct through their own sales forces.

"In our opinion the machine tool business has changed so profoundly since the war that a far greater expert knowledge of the lines sold is demanded of sales representatives.

"This can only be secured by salesmen handling fewer lines, on which they must concentrate. In handling its own products, together with the few outside lines retained, Manning, Maxwell & Moore, Inc., is more actively in the machine tool business than ever before in its history.

"The Putnam Machine Company, owned and operated by Manning, Maxwell & Moore, Inc., has added the Detrick & Harvey and the Beaman & Smith lines to its own extensive lines of heavy industrial and railroad tools.

"The Shaw Crane Company plant at Muskegon, Mich., also owned and operated by Manning, Maxwell & Moore, Inc., is manufacturing important mechanical products besides overhead electric cranes—widening its field, as are the Hancock Inspirator Company, the Ashcroft Manufacturing Company and the Consolidated Safety Valve Company, which are also

owned and operated by Manning, Maxwell & Moore, Inc.

"The company is also carrying on a very extensive machine shop, railroad and mill supply business, a department wholly independent of its many manufacturing activities."

Obituary

ELBERT H. GARY

Judge Elbert H. Gary, chairman and chief executive officer of the United States Steel Corporation, died on August 15 at his home in New York, in his eighty-first year. His death was caused by heart disease, his health, however, having been failing for several years. He was born at Wheaton, Ill., and was educated in the public schools, Wheaton College and the University of Chicago, law department, receiving his degree of LL.B. from the latter in 1867. He later received many honorary degrees from other colleges and universities. He was admitted to the bar in 1867, and the bar of the Supreme Court of the United States in 1882. He subsequently served as county judge of Du Page county, Illinois, and practiced law in Chicago for 25 years. Mr. Gary was identified with the organization of the Federal Steel Company and gave up his law practice to become president of the steel company in Oc-



Elbert H. Gary

tober, 1888. He took a prominent part in the organization of the United States Steel Corporation of which he was chairman of the board, chairman of the finance committee and chief executive officer in general charge of affairs at the time of his death. He had also served as member of the United States section of the International High Commission and as president of the American Iron & Steel Institute since its founding. He was a member of many clubs and societies and had received a number of decorations from foreign rulers. As head of a large corporation Judge Gary had many problems to solve and the success of the enterprise in no small measure was due to his tact in meeting and adjusting these conditions. He was considered a pioneer in handling corporate publicity and was largely responsible in successfully meeting present day conditions for his corporation in its contact with its customers and the public.

Construction

ATCHISON, TOPEKA & SANTA FE.—A contract for the construction of a 330-ton reinforced concrete three-track conveyor type coaling station at Adamana, Ariz., has been awarded to Fairbanks, Morse & Co., Chicago. Power for this coaling station will be supplied by a type "Y" oil engine. The same company has been awarded a contract for the construction of a 1,000-ton reinforced concrete four-track electric conveyor type coaling station with scales at Emporia, Kan. In connection with this coaling station, Fairbanks, Morse & Co., will construct a 1,500-cubic yard reinforced concrete air hoist sanding plant with automatic gravity steam drying system.

CANADIAN NATIONAL.—A contract for the clearing of the right-of-way, grading and the installation of culverts on the Sturgis-Peasane branch from a point near Mile 21 to Crooked River, Sask., has been let to Stewart & Cameron, Ltd., Winnipeg, Man. This contract is in addition to the contract already awarded for the portion of the line between Sturgis, Sask., and Mile 21. A contract has been let to H. G. Macdonald & Co., Edmonton, Alta., for the clearing of right-of-way, grading and installation of culverts on the Willowbrook (Sask.) North-Westerly branch, which will be about 22 miles in length. The Tomlinson Construction Company, Ltd., Winnipeg, has been awarded a contract for clearing of the right-of-way in connection with the revision of line at Mile 162.1 on the Brazeau (Alta.) subdivision. The contract for the clearing, grading and installation of culverts on the extension of the Turtleford (Sask.) Southeast branch from the present end of grade at Rabbit Lake to a junction with the Blaine subdivision, between Denholm, Sask., and Shellbrook, near Speers, 37 miles, has been let to the Western Construction Company, North Battleford, Sask.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract for the construction of mechanical cinder conveying units at Invergrove, Minn., Phillipsburg, Kan., and Estherville, Iowa, has been awarded to Joseph E. Nelson & Sons, Chicago.

CHICAGO, ROCK ISLAND & PACIFIC.—This company received bids until August 9, for the construction of a brick and concrete combined freight and passenger station at Ponca City, Okla. The cost of the station is estimated at \$20,000. Bids have also closed for the construction of a frame passenger station at Purington Station, Chicago, which is expected to cost about \$10,000.

DETROIT, TOLEDO & Ironton.—A contract for the construction of a reinforced concrete and steel bridge over the Maumee river, south of Napoleon, Ohio, has been let to the M. E. White Company, Chicago.

ERIE.—A contract has been let to the O'Gara Construction Co., Newark, N. J., for the reconstruction of a bridge at Glen

Ridge, N. J. Another contract has been awarded to the Hecker-Moon Co., Cleveland, O., for building an extension of seven stalls to the roundhouse at Hornell, N. Y.

GULF & WEST TEXAS.—The attorney general's department of Texas has approved the application of this company for the construction of a line from San Angelo, Tex., to San Antonio, with a leased line connection from San Antonio to Corpus Christi, Tex. The proposed line would be constructed through Tom Green, Schleyer, Sutton, Kimble, Kerr, Kendall, Gillespie, Mason, Runnels, McCullough, Concho, Menard and Bexar counties in Texas.

ILLINOIS CENTRAL.—A contract for the construction of the Aulon viaduct over the tracks of this company, the Louisville & Nashville, the Nashville, Chattanooga & St. Louis and the Union Railway of Memphis at Memphis, Tenn., has been awarded to the H. J. Gilbertson Construction Company, Memphis. The City of Memphis and each of the four railroads involved will equally bear the cost of the structure which is estimated to involve a total expenditure of about \$300,000. The viaduct will be 2,300 ft. long and 36 ft. wide.

LEHIGH & NEW ENGLAND.—A contract for the construction of a 200-ton two-track reinforced concrete electric conveyor type coaling station with sanding facilities and including a 5,000-ton coal storage yard at Bath, Pa., has been let to the Fairbanks, Morse & Co., Chicago.

LEHIGH & NEW ENGLAND.—This company has commenced construction of a new hump classification yard and locomotive terminal to cost approximately \$450,000, which will be known as Tadmor terminal, located between Bath and Nazareth in the heart of the cement manufacturing district of northeastern Pennsylvania. The yard will consist of ten receiving tracks, with a capacity of 260 cars, and twelve classification and storage tracks, with a capacity of 624 cars, or a total capacity of 884 cars. Contracts already let include grading and track laying to F. H. Clement & Co., of Bethlehem, and a 200-ton concrete coaling station, ash pit and ash handling machinery to Fairbanks, Morse & Co. Other facilities to be constructed are an engine house, with boiler room, air compressor, motor and sub-station equipment; a one-story frame office building, a sand handling and storage plant, a brick and concrete oil house, a track scale, as well as water supply facilities, air and power lines and lighting.

LONG ISLAND.—The New York Public Service Commission has ordered this company to build a passenger station at Du Bois avenue, Valley Stream, L. I.

MISSOURI PACIFIC.—A contract has been let to M. P. Heil, St. Louis, Mo., for the construction of a one-story foundry and tin shop at the shops at Ewing avenue, St. Louis.

MOBILE & OHIO.—A contract for the reduction of grade and the rearrangement of line between Columbia, Ill., and Waterloo, which involves the moving of about

250,000 cu. yds. of earth, has been let to John Marsch, Inc., Chicago.

OGDEN UNION RAILWAY & DEPOT COMPANY.—A contract has been let to the Utah Construction Company, Ogden, Utah, for the construction of new trackage and a bridge over the Weber river at Ogden. This project involves the construction of a thoroughfare track around Ogden yard, which includes about 50,000 cu. yd. of grading for 11,500 ft. of track, and the construction of two 80-ft. double track through plate girder spans over the Weber river on concrete piers and abutments. It is anticipated that the entire work will require a total expenditure in the neighborhood of \$180,000.

OREGON SHORT LINE.—A contract has been awarded to the Utah Construction Company, Ogden, Utah, for the grading in connection with the construction of 12 miles of second main track and more than a mile of side track between Minidoka, Idaho, and Dietrich. The construction of culverts, laying of track and fencing will be done by company forces. The estimated cost of the entire project will be about \$1,149,000.

PENNSYLVANIA.—This road has announced that piers Nos. 27, 28 and 29, North River, New York, heretofore utilized for the handling of miscellaneous freight, are being extensively altered, improved and enlarged for the purpose of adapting them exclusively to the handling of fruits, vegetables and dairy products for the metropolis, and providing the best possible facilities for this traffic.

RICHMOND, FREDERICKSBURG & POTOMAC.—This road has let a contract to W. W. Boxley & Company for grading in connection with the change of alignment at Powell's creek near Cherry Hill, Va. The estimated cost of the grading will be \$200,000.

ST. LOUIS-SAN FRANCISCO.—A contract for the construction of a number of frame combined passenger and freight stations on the line now under construction between Aliceville, Ala., and Aberdeen, Miss., has been let to the S. G. Kershaw Contracting Company, Birmingham, Ala., at a cost of \$25,000. A contract has been let to the St. Louis Structural Steel Company, East St. Louis, Ill., for the construction of the superstructures of the machine shop, power house, wheel shop and washroom and locker building at Yale, Tenn. This contract involves an expenditure of about \$64,000.

SOUTHERN.—This railroad has prepared plans for the remodeling of its passenger station at Shelby, N. C.

SOUTHERN.—The contract which this company awarded to John P. Pettyjohn & Co., Lynchburg, Va., for a freight station and office building, covers a brick and concrete structure two stories high; with office space 50 by 50 ft. The freight room will be 50 by 323 ft., with built-up roof, steel rolling doors, and concrete floors, and will be served by a platform 20 by 680 ft. and a covered end platform 20 by 24 ft. Cost

of the project will amount to about \$225,000.

UNION PACIFIC.—This company has applied to the Interstate Commerce Commission for authority to build an extension of approximately 54 miles from a connection with its present line at or near Creighton, Wyo., southerly to a point on its line in the vicinity of Egbert, Burns or Hillsdale, Wyo.

UNION PACIFIC.—A contract has been let to C. T. Whelan, North Platte, Nebr., for the grading in connection with the construction of a 3-mile extension of the Lyman, Nebr., branch and a 3-mile extension southerly from Sears, Nebr., the station at the end of the Lyman branch. Each of these extensions will provide access to beet sugar territory. Track work will be done by company forces. Company forces have begun the construction of an undergrade highway crossing near Kearsey, Colo., which will permit the closing of one grade crossing and the conversion of a second grade crossing into a private crossing. The expense of this project will be divided between the State of Colorado and the railroad. The State of Wyoming will construct the substructure and company forces will erect the steel superstructure of an overhead highway crossing near Red Buttes, Wyo., which will abolish the present grade crossing. An overhead highway crossing to be constructed near Archer, Wyo., in connection with the relocation of the Lincoln Highway will result in the closing of three grade crossings which will be converted into private crossings. The railroad and the State of Wyoming will jointly bear the expense of this work. Company forces will handle the erection of steel and the foundation and substructure will be constructed by the State. Plans have been prepared for the renewal of a pile trestle bridge over the North Platte river east of Nevins, Nebr. An 88-span pile bridge and an earth fill equal in length to 40 spans will replace the original 128-span pile bridge. Company forces have started the construction of tourist facilities at the North Rim of the Grand Canyon National Park, near Bright Angel Point, Ariz. The facilities will include a central pavilion of log construction, 66 guest cabins and 5 cabins of more pretentious construction, each with two rooms, 20 one-room cabins, cabins for housing employees and a women's dormitory. All tourist cabins will be completely furnished. Power and water will be furnished by a hydroelectric development plant which will include pipe lines, electric transmission lines, water tank and telephone lines.

WHEELING & LAKE ERIE.—The State of Ohio has asked for bids for the construction of a grade crossing elimination structure on the line of this railroad, the Pennsylvania and the Wheeling Traction Company, north of Martins Ferry, Ohio, at an estimated cost of \$132,000. The Division of Highways of Ohio is also asking for bids for the elimination of a grade crossing on the Pennsylvania, the Wheeling & Lake Erie and the Northern Ohio Power & Light Company at Garfield Heights, Ohio, at an approximate cost of \$750,000. In each case the state will bear 50 per cent of the cost.

Railway Finance

BANGOR & AROOSTOOK.—Stock Authorized.—The Interstate Commerce Commission has approved the issuance of \$1,468,000 common stock consisting of 29,360 shares of \$50 par value to be sold to present stockholders at \$60 a share in the ratio of two shares of the new stock for each five shares of preferred and one share of new stock for each five shares of common.

BOSTON & MAINE.—Stockholders to Act on Refunding.—A meeting of stockholders has been called for September 9 to authorize the issue of \$30,942,500 of bonds whenever the board of directors decides conditions for refunding are favorable to the railroad. Of the bonds involved, \$26,980,000 were recently purchased from the government in the interest of the railroad, and are being held at the railroad's option. The various issues for which refunding is proposed include the following:

Bonds—	Int. rate	Amount	Maturity date
Series C	6%	\$10,273,000	Jan. 1, 1929
Series D	6	15,677,000	Jan. 1, 1929
Series G	6	1,212,500	Jan. 1, 1929
Series L	6	1,030,000	Jan. 1, 1929
Series N	6	1,106,000	Jan. 1, 1929
Series O	5	51,000	Feb. 2, 1940
Series R	5	25,000	May 1, 1940
Series T	5	1,568,000	Sep. 1, 1941

BRIDGETON & SACO RIVER.—Receivership asked.—A receivership for this property a narrow gage line operated by the Maine Central, has been asked in a bill in equity filed in the Maine Supreme Court by Byer & Small, Portland bond brokers, representing holders of some of the railroad's second mortgage bonds.

CENTRAL CALIFORNIA TRACTION.—Big Systems' Control Approved.—The Interstate Commerce Commission has authorized this company to acquire control of the Central California Traction Company upon the condition that the company shall admit the Western Pacific and the Atchison, Topeka & Santa Fe, or either of them, to participate equally in joint control of the traction company upon payment of proportionate shares of the cost of its securities to be acquired, which consist of \$1,083,000 of capital stock and \$1,471,000 of first mortgage 30-year 5 per cent gold bonds. The commission denied an application of the Western Pacific asking permission to construct a branch line in the same territory in the event that the traction company's line becomes other than an independent line.

"In view of all the circumstances," the commission's decision states, "we are of the opinion that continued impartial operation of the carrier's properties can best be assured by joinder of the three trunk lines in the control of the carrier corporation; and that control of the carrier by two of the trunk lines would afford the next best alternative. If all extraneous matters are set aside, as they properly should be in the common interest of all the carriers to promote the public welfare, and the three trunk lines approach the solution of the carrier's difficulties in a spirit of earnest co-operation, we think that a plan readily

may be formulated for operation of the carrier's properties, under joint control, without discrimination toward any of the joint proprietors. Under such an arrangement, the Western Pacific's ability to compete for traffic interchanged by the carrier will be amply protected without the necessity of constructing the proposed branch."

The Southern Pacific was instructed by the commission to admit within 60 days, the Western Pacific and Santa Fe, or either of them as those carriers respectively may consent thereto, to equal participation in joint control of the Central California and to report within 70 days from the date of the commission's order (dated August 5) all pertinent facts relating to the exercise of the authority granted and to compliance with the condition annexed.

CHICAGO & ILLINOIS MIDLAND.—Equipment Notes.—This company has applied to the Interstate Commerce Commission for authorization to issue \$1,058,530 of 5 per cent equipment notes to the Pullman Car & Manufacturing Corporation on the purchase of equipment, the base price of which amounts to \$1,010,628. The notes will be dated September 15, 1927, and will mature in quarterly installments over ten years.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Preferred Stockholders' Committee Files Brief.—A brief advocating the plan of reorganization of the Chicago, Milwaukee & St. Paul Railway has been filed with the Interstate Commerce Commission on behalf of the Preferred Stockholders' Committee, which represents approximately 73.1 per cent of the total outstanding preferred stock. The committee informed the commission that it would not feel called upon to file a brief except that the contentions made by the Jameson bondholders' committee is that the plan or reorganization is too favorable to the stockholders and that, accordingly, the application of the Chicago, Milwaukee, St. Paul & Pacific should be denied.

"At this stage any substantial amendment of the plan by the managers is impossible; it would result in chaos," the brief of the preferred stockholders' committee asserts. "If a new plan were freshly negotiated what assurance would there be that some comparatively small security holder, Jameson or some other, would not wreck the new plan? In other words, when once a plan has been negotiated, has been approved by the overwhelming majority of the security holders, when all objections have been heard and passed on by the appropriate courts (and no objection is now presented peculiar to the field of the commission), when the sale has occurred and has been confirmed, and when through thousands of transactions thousands of people have changed their position, if under these circumstances a plan can be destroyed by a small minority, the result is chaos; security holders can have no firm confidence in any plan until it has been actually consummated; the most effective inducement

to negotiation, namely, that when a conclusion is reached it will remain fixed, is removed."

GREAT NORTHERN.—Acquisition.—This company's application for authority to acquire control of the Oregon, California & Eastern has been assigned by the Interstate Commerce Commission for hearing September 9 at Washington, D. C., before Examiner R. R. Molster.

Abandonment.—The Interstate Commerce Commission has authorized this company to abandon that portion of its line between Peshastin, Wash., and Winton, 17 miles, and has authorized it to construct a new line between the same points. The new line will have better grades and in addition the company will be freed of the necessity of maintaining or rebuilding over 8,000 ft. of snow sheds.

GREAT NORTHERN PACIFIC.—Interventions Allowed.—The Interstate Commerce Commission has issued orders permitting the receivers of the Chicago, Milwaukee & St. Paul, the Chicago, Milwaukee, St. Paul & Pacific, the receiver of the Minneapolis & St. Louis, the Minneapolis Western, the Minneapolis, Red Lake & Manitoba, the Minneapolis, Northfield & Southern, and the Electric Short Line Terminal Company to intervene and be treated as parties to the proceedings on this company's application for authority to acquire control of the Great Northern and Northern Pacific. The St. Paul petition says the interests of the St. Paul, of the public served by its lines, and of the public generally, will be prejudicially affected if the applications are granted. The commission has also postponed the hearing on the application from October 3 to October 24. It is to be before Director Mahaffie of the commission's Bureau of Finance at Minneapolis, Minn.

GREAT NORTHERN PACIFIC.—C. M. & St. P. will Intervene.—The Chicago, Milwaukee & St. Paul has announced that it will intervene in the matter of the proposed merger of the Great Northern and Northern Pacific. H. E. Byram, receiver, announced four reasons which he believes will arouse public opposition to the merger. These being as follows:

It would create and maintain unbalanced competition contrary to the laws governing transportation.

The proposed merger is not comprehensive either as to railroads or to territory.

It would preclude or prejudice further necessary unifications.

It is in direct opposition to the consolidation plan officially proposed by the Interstate Commerce Commission to develop fair and impartial railroad consolidations.

Mr. Byram in addition stated:

"The Northwest has not forgotten how utterly inadequate its transportation facilities were before the St. Paul built to the Pacific Coast. The St. Paul's competition was the stimulus that resulted in increased facilities and service.

"The benefits claimed for the proposed merger by its advocates would be realized in equal or greater measure by a unification of the Milwaukee with one of the other three railroads serving the Northwest and at the same time the public would have pre-

served to it the advantages of a balanced, keen competition. The proposed merger does not promise to promote this situation.

"I feel very strongly, therefore, that any plan of unification that will hamper the St. Paul in the development of the Northwest or that will place it in a prejudiced position in the field of competition should be opposed from the broad standpoint of public interest."

Merger Plan Opposed.—Clara Hill Lindley, daughter of the late James J. Hill, and Erasmus C. Lindley, her husband and former vice-president and general counsel of the Great Northern, have asked the Interstate Commerce Commission for permission to intervene in the case covering the proposed unification of the Great Northern and Northern Pacific. Mr. and Mrs. Lindley state that they are in favor of the unification but that their objection is directed at the means of carrying it out. They believe that either the Great Northern, a Minnesota corporation, or the Northern Pacific, a Wisconsin corporation, should be the principal unit in the proposed combination and they object to transferring the management of the two roads to a corporation having a charter from Delaware. The petition asking permission for intervention suggests more particularly that the Northern Pacific lease all its properties except stock of the Burlington and the Spokane, Portland & Seattle to the Burlington, that the Northern Pacific lease or sell holdings in the two subsidiary lines to the Great Northern and that the Great Northern issue stock in exchange for the stock of the Northern Pacific. The petition continued:

"It would be more 'compatible with the public interest' for the Great Northern to issue approximately \$250,000,000 additional capital stock, in exchange for a like amount of Northern Pacific stock than for the Delaware company to issue approximately \$500,000,000 of capital stock in exchange for the stock of the Northern lines.

"The Northern Pacific shareholders who exchange their shares for Great Northern shares would secure the stock of a seasoned, solvent and wealthy corporation of approved credit. The Northern Pacific shareholders who do not exchange their shares for Great Northern shares would have the protection of a responsible lessee.

"The lease of the Great Northern to the Northern Pacific, with exchange of stock as herein suggested, would be simple and would lend itself readily to a complete unification of the Northern lines and the Burlington, by an exchange upon equitable bases of Great Northern stock for the approximately 3 per cent. of the Burlington stock now held by the public and (or) by lease of the Burlington to the Great Northern. The committee's plan tends to further complicate the already somewhat unsatisfactory financial status of the Burlington."

KANSAS CITY, SHREVEPORT & GULF TERMINAL.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to extend the maturity date of \$150,000 for its first mortgage bonds for a period of 10 years to August 1, 1937.

KINDER & NORTHWESTERN.—Abandonment.—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon its line from Kinder, Allen Parish, La., to Emad, 2 miles. In 1921 this company was also authorized to abandon 14 miles of line extending beyond Emad. The reason is the exhaustion of timber supplies.

MUSCLE SHOALS, BIRMINGHAM & PENSACOLA.—Acquisition.—Examiner Haskell C. Davis recommends to the Interstate Commerce Commission in a

proposed report made public August 4 that this company, a subsidiary of the Frisco, should be authorized to acquire and operate the tracks of the Gulf Ports Terminal Railway and the Gulf Power Company in Escambia county, Fla. The terminal company's track extends from a point near Pensacola Bay westerly for 3.3 miles, on which 1.8 miles are within the city limits of Pensacola. The power company's track extends from a connection with the L. & N. in Tarragona street, Pensacola, west to the city limits and thence along the shore of Pensacola Bay to the north bank of Bayou Grande, a distance of 4.9 miles. The two lines will provide adequate terminal facilities at Pensacola for the Frisco's use.

NEW YORK CENTRAL.—Acquisition.—The Interstate Commerce Commission has authorized this company to acquire control of the Middleport & Northeastern, extending from a connection with the Kanawha & Michigan at Rockville, Ohio, to Calvin, 2.5 miles, by purchase of the company's entire capital stock. The company is at present controlled by a lease in which there is a provision that the lease may be terminated by either party upon six months' notice.

OHIO & KENTUCKY.—Income Certificates.—This company has been authorized by the Interstate Commerce Commission to extend from July 1, 1926, to July 1, 1936, the maturity date of \$250,000 of first mortgage sinking fund 5 per cent gold bonds, and to issue, according to prescribed terms and conditions, \$31,250 of 5 per cent income certificates, series A, and \$175,000 of 5 per cent income certificates, series B.

PERE MARQUETTE.—Equipment Certificates.—This company has been authorized by the Interstate Commerce Commission to issue \$2,550,000 4½ per cent equipment trust certificates to be sold to the Mellon National Bank and Salomon Brothers & Hutzler at 99.71.

PITTSBURGH & WEST VIRGINIA.—Files Application to Acquire Control of Wheeling & Lake Erie.—This company has filed an application with the Interstate Commerce Commission for authority to acquire control of the Wheeling & Lake Erie by purchase of a majority of its capital stock. The applicant stated that it now owns and holds 65,200 shares of the preferred and common stock of the Wheeling and "has reason to believe that such control can be acquired by stock purchase if the approval of the commission is obtained."

The applicant informed the commission that at the annual meeting of the stockholders of the Wheeling held on May 25 at Cleveland, Ohio, there were present in person or by proxy a total of 227,671 shares of the Wheeling "which were voted in harmony with the shares owned by the Pittsburgh & West Virginia, the owners and holders of which shares are in accord with the applicant in reference to its desires toward the Wheeling & Lake Erie Railway Company."

The Pittsburgh & West Virginia does not exercise any control over the Wheeling & Lake Erie at this time, the application stated, but as "other trunk lines, such as

the Baltimore & Ohio, New York Central and Nickel Plate are competitive with the Wheeling and have secured a large stock interest in the Wheeling, it is in the public interest that the control of the Wheeling should be held by applicant, whose relation to the Wheeling is non-competitive.

"If the service now being rendered to the public by applicant and the Wheeling is to be preserved as it should be in the public interest, then it is equally in the public interest that the control of the Wheeling should rest with the applicant and not with any other persons or carriers whose interests are inconsistent with the development of such service," the application stated.

The commission was informed that the applicant and the Wheeling have no officers in common and that the only directors in common are Frank E. Taplin and Charles F. Taplin, who were elected as directors of the Wheeling at the annual meeting on May 25, and whose applications to serve as such directors have been approved by the commission. The applications of several officials of the New York Central, the Baltimore & Ohio and the Nickel Plate to hold positions with the Wheeling, as the result of the acquisition of stock in the company by these carriers, now are pending before the commission.

The Pittsburgh & West Virginia stated in its application that it was authorized by resolution unanimously adopted at a meeting of the board of directors on June 30 at New York City, and that it proposes to acquire control of the Wheeling by purchase of a majority of such carrier's capital stock, preferred and common, for not to exceed such average price for each class of shares as the commission shall fix and determine. The application stated that no agreement has been entered into between applicant or any other person or persons.

"The control of the Wheeling is now so closely held that market quotations on Wheeling shares are no criterion of their true value; furthermore," the application continued, "applicant is not now in a position to give an estimate of such value, deeming that the arriving at such value and the fixing of the maximum price to be paid by applicant for such shares are matters to be developed upon the hearing on this application and to be determined by the commission."

The line of the Pittsburgh & West Virginia extends from Pittsburgh, Pa., to Pittsburgh Junction, Ohio. The Wheeling & Lake Erie owns and operates lines between Terminal Junction, Belmont County, Ohio, northward to the lake ports of Cleveland, Lorain, Huron and Toledo, making connections with other carriers, including the Pennsylvania, Baltimore & Ohio, New York Central, Nickel Plate and Wabash. The Wheeling has trackage rights over the Baltimore & Ohio into Wheeling, W. Va. The points of interchange between the Pittsburgh & West Virginia and the Wheeling are Pittsburgh Junction, in Harrison county, and Mingo Junction, in Jefferson county, Ohio. The total mileage operated by the Wheeling is 511 miles, of which 353 miles are main line.

The application of the Pittsburgh & West Virginia set forth that acquisition

of control of the Wheeling would be in the public interest for the following reasons:

"The lines of the Wheeling & Lake Erie and of the applicant, including therewith the West Side Belt, are neither parallel nor competitive, but complementary and supplementary. The lines of the applicant were originally constructed to be operated, and for some years were operated, in conjunction with the lines of the Wheeling, the separation of said properties having been brought about at the time of the receivership of both companies, at which time the applicant was known as the Wabash Pittsburgh Terminal. For a number of years last past there has been a permanently established through route and channel of trade and commerce over the lines of the applicant from Pittsburgh to Pittsburgh Junction, and the lines of the Wheeling from Pittsburgh Junction to industrial centers in Ohio served by the Wheeling as well as to the lake ports of Cleveland, Lorain, Huron and Toledo, and to connections of the Wheeling at Toledo and other points along its line. For some time the shortest route and the fastest freight service between Pittsburgh and a number of the points mentioned has been over the said route, and a large interchange of traffic between the applicant and the Wheeling has grown up as a result thereof. It is in the public interest that this service should not only be continued, but that it should be improved."

ST. LOUIS-SAN FRANCISCO.—Acquisition.—The Interstate Commerce Commission has approved the acquisition of control of the St. Louis, Kennett & Southeastern and the Butler County by purchase of capital stock or by lease. The St. Louis-San Francisco has also been authorized to issue \$650,000 prior lien mortgage 5 per cent bonds, series B, in payment for the stock of the Butler County.

SAN DIEGO & ARIZONA.—Notes.—This company has been authorized to issue from time to time until December 13, 1927, promissory notes amounting to \$2,573,372 for the purpose of renewing notes at present outstanding.

SAN DIEGO & ARIZONA.—Renews Notes.—This company has been authorized by the Interstate Commerce Commission to issue promissory notes aggregating \$2,573,371 from time to time until December 21 next in renewal of outstanding notes of like amount.

SAN DIEGO & ARIZONA.—Tentative Valuation.—The Interstate Commerce Commission's tentative valuation report, as of 1921, finds the final value for rate-making purposes of the property owned and used for common carrier purposes to be \$10,130,000, while that of the property used is placed at \$10,323,476. The outstanding capitalization as of valuation date was \$21,980,348 and the book investment in road and equipment \$13,009,930.

SAN FRANCISCO & SACRAMENTO.—Acquired by James Interests.—The Sacramento Company, organized in the interest of Arthur Curtis James, who owns a working control of the Western Pacific Corporation, has acquired 97 per cent of the outstanding stock of the San Francisco & Sacramento by taking up the common and

preferred stocks deposited under an offer of \$5 for common and \$20 for preferred stock.

Interests affiliated with the Western Pacific are also reported to be seeking control of the Central California Traction Company, which operates 55 miles of line in the region between Stockton, Cal., and Sacramento, but it is stated that these interests are meeting opposition from the Southern Pacific and the Atchison, Topeka & Santa Fe, which also desire an interest in the property.

SEABOARD AIR LINE.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire control, by acquisition of stock and 99-year lease, of the railroad and other properties of the Georgia, Florida & Alabama Railroad, organized for the purpose of acquiring all of the lines, property and assets of the railway company of the same name.

The lease will provide for the payment of a rental value equivalent to 6 per cent on the \$1,750,000 first mortgage refunding bonds, due August 1, 1952, to be issued by the Georgia, Florida and Alabama Railroad, 5 per cent upon the first preferred stock and, after the fourth year from the effective date of the lease, an amount equivalent to 5 per cent upon the \$500,000 of second preferred stock, the dividend rate for the year beginning three years after effective date of the lease being 4 per cent on the second preferred stock, no dividend being payable for the first three years.

The Georgia, Florida & Alabama Railroad has applied for authority to acquire and operate the property of the old company and to issue the bonds and preferred stock referred to, together with 10,000 shares of common stock of no par value. The Seaboard will assume all obligations of the new company. The Seaboard's application stated that "the Georgia, Florida & Alabama is a logical acquisition for the applicant to make, effecting and assuring thereby substantial operating economies by bringing the properties under the system operation of the applicant."

Bonds.—This company has applied to the Interstate Commerce Commission for authority to procure authentication and delivery of \$804,000 of first and consolidated mortgage 6 per cent gold bonds, due 1945, to reimburse its treasury for the retirement of the equipment trust obligations; and to pledge the bonds as collateral security for short term notes.

UNION RAILROAD OF OREGON.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to purchase and operate a line 2.1 miles in length extending from Union Junction to Union, Oregon. The application stated that the road is now operated at a loss by the Central Railroad of Oregon. The applicant advised the commission that it is not and will not be connected with any other road.

WESTERN PACIFIC.—Bonds.—This company, in a supplemental application to the Interstate Commerce Commission, has asked authority to sell on competitive bidding \$2,678,500 of an issue of \$2,950,000 of 5 per cent first mortgage bonds which was authorized by the commission on

March 29. It asks the commission to fix a minimum price, saying that in all probability a price of 99.5 will be obtained and that the Western Pacific Railroad Corporation contemplates bidding for the bonds.

WEST PITTSBURGH-EXETER.—Capital Stock.—This company has been authorized by the Interstate Commerce Commission to issue \$50,000 of capital stock, to be sold at par for cash and the proceeds applied to the cost of constructing the carriers' road.

WICHITA FALLS & SOUTHERN.—Acquisition.—This company has been authorized by the Interstate Commerce Commission to acquire control of the railway company of the same name by purchase of its capital stock and by lease of its properties; and of Wichita Falls, Ranger & Fort Worth Railroad by purchase of its capital stock and bonds of that company and by lease of its properties.

WILMINGTON & NORTHERN.—Bonds.—This company has applied to the Interstate Commerce Commission for permission to extend payment of \$353,000 first mortgage 5 per cent bonds maturing December 1, 1927, until December 1, 1977, with interest at 4½ per cent. The Reading Company applied for authority to guarantee payment of principal and interest of the bonds.

Average Price of Stocks and Bonds

	Last Aug. 16	Last week	Last year
Average price of 20 representative railway stocks..	119.09	117.88	100.13
Average price of 20 representative railway bonds..	94.93	94.68	90.92

Valuation Reports

The Interstate Commerce Commission has issued valuation reports, finding the final value for rate-making purposes of the property owned and used for common carrier purposes as of the respective valuation dates as follows:

Final Reports

Missouri & Illinois Bridge & Belt	\$919,500	1919
Wichita Union Terminal....	1,935,000	1916
Denver Union Terminal....	3,861,000	1917
Benwood & Wheeling Connecting.....	305,000	1918

Tentative Reports

Terminal Railroad Association of St. Louis.....	\$18,656,880	1919
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Dividends Declared

CHESAPEAKE CORPORATION.—Initial, \$75, quarterly, payable October 1 to holders of record September 8.

CHESAPEAKE & OHIO.—Common, 2½ per cent, quarterly, payable October 1 to holders of record September 8. Preferred, Series A, 3¼ per cent, semi-annually, payable January 1, 1928 to holders of record December 8, 1927.

CHESTNUT HILL.—1½ per cent, quarterly, payable September 6 to holders of record August 20.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—Preferred, \$1.25, quarterly, payable September 1 to holders of record August 15.

DELAWARE & BOUND BROOK.—2 per cent, quarterly, payable August 20 to holders of record August 17.

HOCKING VALLEY.—Common, \$2.50, quarterly, payable September 30 to holders of record September 8.

NORTH PENNSYLVANIA.—\$1.00, quarterly, payable August 25 to holders of record August 15.

PHILADELPHIA, GERMANTOWN & NORRISTOWN.—3 per cent, quarterly, payable September 6 to holders of record August 20.

PITTSBURGH, YOUNGSTOWN & ASHTABULA.—Preferred, 1¼ per cent, quarterly, payable September 1 to holders of record August 20.

SOUTHERN PACIFIC.—1½ per cent, quarterly, payable October 1 to holders of record August 26.

UNION PACIFIC.—Common, 2½ per cent, quarterly, preferred, 2 per cent, semi-annually, both payable October 1 to holders of record September 1.

Railway Officers

Executive

George F. Peabody, of New York, has been elected vice-president of the Mexican Northern.

Operating

J. M. Delgado, trainmaster on the Mexican Northern, with headquarters at Escalon, Chih., has been promoted to superintendent, with headquarters at the same point.

P. G. Russell has been appointed assistant superintendent of the Smithers division of the British Columbia district of the Canadian National, with headquarters at Smithers, B. C., succeeding **F. G. Jackson**, who has resigned.

Lowell White, superintendent of transportation of the Atlantic Coast Line, with headquarters at Wilmington, N. C., has been appointed general superintendent of telegraph, mail and express traffic. The position of superintendent of transportation (system) at Wilmington has been abolished.

Dwight S. Brigham, assistant general manager of the Boston & Maine, with headquarters at Boston, Mass., has resigned. As a result of the resignation several months ago of **B. R. Pollock** as vice-president and general manager and the resignation of Mr. Brigham as assistant general manager, those positions have been abolished and the duties of these offices have been taken over by the president.

J. W. Blossingham, trainmaster on the River division of the Chicago, Milwaukee & St. Paul, with headquarters at Minneapolis, Minn., has been promoted to assistant superintendent on the La Crosse and Northern division, with headquarters at Portage, Wis. **D. T. Bagnell**, trainmaster on the Dubuque division, with headquarters at Dubuque, Iowa, has been transferred to succeed Mr. Blossingham. Mr. Bagnell will be succeeded by **W. J. Hotchkiss**, chief dispatcher at Savanna, Ill. **F. P. Rogers**, chief clerk in the office of the general superintendent at Minneapolis, has been promoted to trainmaster of the Twin City terminals, with headquarters at the same point.

N. P. North, assistant superintendent on the Belleville division of the Canadian National, with headquarters at Belleville, Ont., has been promoted to superintendent, with headquarters at Hornepayne, Ont. **J. H. McDiarmid**, assistant superintendent, with headquarters at Portage la Prairie, Man., has been transferred to the staff of the general superintendent of transportation, with headquarters at Toronto, Ont. **R. E. Orr**, assistant superintendent on the Belleville division, with headquarters at Lindsay, Ont., has

been transferred to Belleville, Ont., succeeding Mr. North. Mr. Orr is succeeded by **Edgar W. Burns**, chief clerk to the general manager of the Central region, with headquarters at Toronto.

C. A. Plotner, assistant trainmaster on the Pittsburgh division of the Pennsylvania, with headquarters at Conemaugh, Pa., has been promoted to trainmaster on the Cincinnati division, with headquarters at Cincinnati, Ohio, succeeding **F. L. Davis**, who has been transferred to the Logansport division, with headquarters at Logansport, Ind. Mr. Davis succeeds **W. T. Henderson**, who has resigned. **E. A. Burchiel**, road foreman of engines on the Ft. Wayne division, with headquarters at Ft. Wayne, Ind., has been appointed trainmaster on the Indianapolis division, with headquarters at Indianapolis, Ind. **H. C. Kirby**, train dispatcher on the Cincinnati division at Cincinnati, has been promoted to assistant trainmaster and division operator on the Indianapolis division at Indianapolis.

Traffic

R. V. Oldham, district passenger agent on the Wabash at Indianapolis, Ind., has been appointed assistant general passenger agent of the Ann Arbor, with headquarters at Toledo, Ohio.

C. E. Muller, assistant freight traffic manager of the Seaboard Air Line, with headquarters at Norfolk, Va., having resigned effective August 31, the position of assistant freight traffic manager is abolished.

A. B. Reynoldson, assistant general agent of the Southern Pacific at Liverpool, Eng., and London, has been promoted to general agent for Great Britain, with headquarters as before in the two cities. Mr. Reynolds succeeds **R. G. Bonsor**, deceased.

F. J. Osborne has been appointed Eastern dairy agent of the New York Central Railroad and the West Shore Railroad, with headquarters at New York City, succeeding **S. D. Parkhurst**, deceased. **F. L. Wortman** has been appointed assistant Eastern dairy agent, with the same headquarters.

Eugene W. Vail, division freight agent of the Erie, with headquarters at Meadville, Pa., has been appointed assistant general freight agent, with headquarters at Cincinnati, Ohio, succeeding **C. P. Morse**, retired, and has been succeeded by **James M. Skachill**. **Eugene J. Dean** has been appointed division freight agent, with headquarters at Dayton, O., succeeding **C. L. Farrell**, resigned. **Francis L. Collins** has been appointed division freight agent, with headquarters at Erie station, Huntington, Ind., succeeding **J. H. Hackett**, retired. **Richard**

L. Murphy has been appointed general agent at Louisville, Ky., succeeding **Theodore Lengmiller**, retired. **Beecher A. Rockwell**, general agent at St. Louis, Mo., has been transferred in the same capacity to Detroit, Mich. **George F. Daniels**, general agent at Des Moines, Ia., has been transferred in the same capacity to St. Louis, succeeding Mr. Rockwell, and **Clifford V. Harrow** has been appointed general agent at Des Moines, succeeding Mr. Daniels. **David R. Thompson** has been appointed foreign freight agent, with headquarters at Chicago.

Mechanical

Harry T. Bentley, general superintendent of motive power and machinery of the Chicago & North Western, with headquarters at Chicago, will retire on September 1 under the pension rules of the company.

Engineering, Maintenance of Way and Signaling

C. H. Zentmyer, assistant division engineer of the Chesapeake & Ohio, with headquarters at Clifton Forge, Va., has been appointed division engineer, with the same headquarters, succeeding **J. D. Keiley**, deceased. **R. G. McGehee** has been appointed assistant division engineer at Clifton Forge, succeeding Mr. Zentmyer.

H. W. Brown, assistant engineer in the Western region of the Pennsylvania at Chicago, has been promoted to division engineer of the Toledo division, with headquarters at Toledo, Ohio, succeeding **J. K. Sherman**, who has been appointed assistant engineer in the office of the chief engineer of maintenance of way of the Western region at Chicago.

G. E. Yahn, roadmaster on the Chicago, Burlington & Quincy at Old Monroe, Mo., has been promoted to district engineer of maintenance of way of the Illinois district, with headquarters at Galesburg, Ill., succeeding **W. O. Frame**, who has been transferred to the Iowa district, with headquarters at Burlington, Iowa. Mr. Frame replaces **D. Cameron**, who has been assigned to other duties.

Obituary

Joseph H. Gates, general manager in the central department of the American Express Company, died at his home in Chicago on August 16.

Carroll P. Cooper, for the past 10 years comptroller of the Fruit Growers Express Company, died on August 3 at Washington, D. C., following an attack of ptomaine poisoning. During 1917 and a part of 1918 Mr. Cooper was assistant to the vice-president of the Southern at Cincinnati, Ohio, and previous to that time he had been general agent of the Southern at Memphis,

Tenn. At the time of his death Mr. Cooper was also comptroller of the Western Fruit Express Company and the Burlington Refrigerator Express Company.

Turnbull Murdoch, president and general manager of the Baltimore, Chesapeake & Atlantic and the Baltimore & Virginia Steamboat Company, with headquarters at Baltimore, Md., died on August 14, of heart disease at his home in Rodgers Forge, Baltimore County.

Gustavus Erickson, superintendent on the Western division of the Canadian Pacific from 1902 to 1908, died at his home at Invermere, B. C., on July 30 at the age of 72 years. Mr. Erickson was a member of the engineering forces which supervised the construction of the Crow's Nest Pass branch of the C. P. R. prior to 1895, and in that year he was appointed roadmaster at Field, B. C. In 1900 he was promoted to general roadmaster, with headquarters at Cranbrook, B. C., becoming superintendent, with headquarters at the same point, in 1902. Mr. Erickson was appointed superintendent of construction of the line along the Columbia river between Golden, B. C., and Colvalli in 1908 and was employed in various capacities on that part of the C. P. R. until his retirement in May, 1922.

Charles V. Lewis, formerly freight claim agent of the Baltimore & Ohio, died on August 12 at Muncie, Ind., at the age of 90 years. Mr. Lewis during the early part of his railway service was assistant general freight agent on the Missouri Pacific at Kansas City, Mo. In May, 1891, he was appointed assistant general freight agent of the Cleveland, Cincinnati, Chicago & St. Louis at Cincinnati, Ohio, later being transferred to Chicago. Mr. Lewis became general freight agent of the B. & O., with headquarters at Baltimore, Md., in 1896, a position he held until 1903 when he was appointed freight claim agent, with headquarters at the same point. In 1914 Mr. Lewis retired as freight claim agent at his own request and was appointed a special representative of the freight claim department. He retired from all active duties in 1919.

John E. Sexton, vice-president of the Eureka Nevada, with headquarters at Palisade, Nev., died on Aug. 9 at San Francisco, Cal. Mr. Sexton, who was born on February 25, 1866, at Caloma, Cal., entered railway service when 16 years old in the engineering department of the Market Street Cable Railroad at San Francisco. He later served on various railways as locomotive fireman, brakeman, engineman, way-bill clerk and clerk to the superintendent, becoming interested in the construction of five small railroads in the West, including the Eureka & Nevada, in 1911. In 1912 Mr. Sexton became general manager of the Eureka Nevada, the successor of the E. & N. He served this railroad in various capacities, including that of chief engineer and president and

general manager until 1925 when he was elected vice-president. Mr. Sexton held the position of vice-president until the time of his death.

Henry K. Wicksteed, consulting engineer for the Canadian National and formerly chief locating engineer of the Canadian Northern, died at Toronto, Ont., on July 25, aged 72 years. Mr. Wicksteed was born in Quebec, Can., in 1855, and was educated in the private and high schools of Quebec and at McGill University, B. A. Sc. 1873. He took a post graduate course in mining and assaying in 1873 and 1874. From 1874 until 1885 he was engaged in surveys for the Canadian Pacific and served as chief engineer of the Brantford, Waterloo & Lake Erie (now the Toronto, Hamilton & Buffalo) in 1887. His later work included double tracking other work for the Grand Trunk and location of the Nipissing & James Bay. He also served on the Soulages Canal and other railroads until 1899. From this time until 1921 he was with the Canadian Northern and the Canadian National and during the last few years served in a consulting capacity.

John C. Bland, retired engineer of bridges and buildings of the Pennsylvania, died at Atlantic City, N. J., on July 16, at 74 years of age. Mr. Bland entered the service of the Pennsylvania in 1872, as a rodman in the chief engineer's department at Philadelphia. From 1873 to 1874 he was assistant engineer. He resigned in 1874 and was engaged in private engineering practice until 1895, when he re-entered the service of the company in the chief engineer's office of the Pittsburgh, Cincinnati, Chicago & St. Louis at Pittsburgh, Pa. From January 16, 1896, until January 1, 1901, he was assistant engineer on the same road, and from the latter date until March 1, 1920, was engineer of bridges on the same road. He then became engineer of bridges and buildings of the Pennsylvania Railroad at Pittsburgh, which position he was holding when he retired on February 1, 1923. Mr. Bland designed and supervised the construction of many railroad bridges for the Pennsylvania, including the Fort Wayne Bridge over the Allegheny river at Pittsburgh, the Panhandle bridge, over the Allegheny river, at Pittsburgh, the Ohio Connecting Railroad bridge over the Ohio river at Pittsburgh, and the Pennsylvania Railroad bridge over the Ohio river at Louisville, Ky.

Thomas A. Roberts, general agent for the Pennsylvania at Detroit, died on August 12 as the result of injuries received in an automobile accident at Rochester, Mich., on August 11. Mr. Roberts was born at Lancaster, Pa., on May 15, 1874, and after attending the Pennsylvania Military College, Chester, Pa., he entered railway service on October 1, 1891, as a machinist apprentice on the Pennsylvania at Renovo, Pa. In 1896 he was promoted to machinist and for the next 22 years he served successively in that capacity and as weighmaster, chief station clerk, extra agent

and yardmaster and freight agent at various points on the Pennsylvania. Mr. Roberts was advanced to assistant superintendent at Philadelphia, Pa., in 1918, becoming superintendent of what was formerly the Mansfield division on March 1, 1920. On March 16, 1921, he was appointed acting superintendent of the Ft. Wayne division, with headquarters at Ft. Wayne, Ind., where he remained until July 1, 1922, when he was appointed general agent and superintendent of the Toledo division. Mr. Roberts was promoted to general agent at Detroit on January 16, 1924, a position he held until the time of his death. His entire service, since the age of 17, had been with the Pennsylvania.

William Pepper Bruce, vice-president and general manager of the Nashville, Chattanooga & St. Louis, died on August 14 at Nashville, Tenn., from angina pectoris. Mr. Bruce had been in failing health for more than a year and had been absent from active duty since the middle of July. He was born at Nashville on October 5, 1861, and after attending Springfield Academy, Springfield, Tenn., he entered railway service at the age of 15 as an agent and operator on the St. Louis & Southeastern (now a part of the Louisville & Nashville). Mr. Bruce served in that capacity until 1880 when he was appointed a train dispatcher on the L. & N. Fol-



W. P. Bruce

lowing two years of service as a dispatcher on the L. & N., he acted successively until 1900 as agent for the Peoria, Decatur & Evansville (now a part of the Illinois Central), as train dispatcher on the Chicago, Burlington & Quincy, on the Gulf, Colorado & Santa Fe, on the Union Pacific, on the East Tennessee, Virginia & Georgia (now a part of the Southern) and on the L. & N. and as yardmaster on the L. & N. and the N. C. & St. L., becoming superintendent of the Nashville terminals of the latter railroads in 1902. In 1918 Mr. Bruce was appointed general manager of the N. C. & St. L., with headquarters at Nashville. He was elected vice-president and general manager in March, 1926, which position he held until his death.